PAPER TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Vol. 116, No. 12 Thursday, March 25, 1943 Price Ten Cents

Canada Takes Exception to Newsprint Price

Article in Toronto Paper Declares Unsatisfactory Newsprint Price Situation is Primarily Caused by Policy Made in Washington—WPB Stated to Have Originated Plan to Curtail the Consumption

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., March 22, 1943—Canadian pulp and paper interests take vigorous exception to the criticism of United States publishers concerning Canada's newsprint price policy and the rationing of paper. Writing in *The Financial Post*, John E. Langdon charges that these critics are either unaware of what has been going on in their own industry or are deliberately muddying the waters in an effort to offset any further upward adjustment in the price of paper this year.

The criticism referred to charges that Canada's bungling and ignorance of its own statistical position on pulpwood was responsible for the apparent volte face in withdrawing the mooted April 1 ration cut on newsprint and other papers. It was also charged that Canadian officials and newsprint operators were doing smart horsetrading in "threatening" to cut consumption and that "once Canada got its higher newsprint price, it didn't take long to produce the extra newsprint and pulpwood."

Asserts Policy is Made in Washington

The article states that the basic fact in the current newsprint situation is that policy is made not in Ottawa or Montreal, but in Washington. Washington has been calling the tune for some months past. It continues to call the tune and will undoubtedly do so for some time to come.

It is pointed out that Donald Gordon, head of Canada's Wartime Prices and Trade Board; Wilbert Howard, pulp and paper administrator; R. L. Weldon, newsprint administrator; A. B. Jewett, book and writing paper administrator; and John Atkins, publishing administrator, have sat in on Washington conferences, but the United States War Production Board has been responsible for the making of policy.

The writer goes on to say that the plan to cut consumption originated with the WPB. It made its own appraisal of the situation, has known right along what Canada could produce. It has been equally well informed on the domestic situation in the United States. Objective of the WPB in cutting paper consumption three months ago was to release a larger proportion of available pulp for war purposes. If anybody is to be criticized, it must be WPB, operators point out.

The idea for a second 10% cut in consumption originated with the WPB and not in Canada. The opposition in Congress and among publishers, to this move, forced the WPB to change its plans and defer action until at least July 1. The reason officially given was that Canada's pulpwood supply was found to be bigger than had been known, hence the accusation of Canadian bungling and ignorance of its own statistical position in pulpwood.

States Canada Did Not Bungle

"The facts show that Canada did not bungle," the article states, "nor did it display ignorance. Early last December a survey was made and on the then known facts it appeared that Canada would not have enough wood to meet all prospective demands, particularly pulp and pulpwood from the United States.

"The estimate was as accurate as it was humanly possible to make at the time. As the winter passed and reports of cutting came in, the situation began to look more promising. American publishers were not unaware of this. The A.N.P.A. privately investigated the situation and came to the conclusion that pulpwood was the crux of the paper situation and that the supply was not altogether satisfactory.

"Without waiting for the scaling returns to come in, WPB announced a second cut. Note than Canadian authorities never announced a second cut. Several Canadian manufacturers went on record publicly as being opposed to any further reduction in consumption.

"There followed hurried meetings between officials of the WPB and the WPTB and the announcement of the deferment of plans to curtail consumption further."

The article goes on to review the various steps taken by Canadian manufacturers to secure a higher return for their product—the announcement of Dec., 1941, of an increase to take effect the following April, and the subsequent attempt to get a price advance on account of the increases in transportation charges. The first was turned down by the Office of Price Administration and the second blocked by representations made by the publishers. The OPA made

Continued on page 19

Employment in Wisconsin Mills Maintained

Industrial Commission Report Shows Employment Declined Only Slightly in January From December—Bill Plans Post-War Reserve —Opposes Withdrawal of County-Owned Lands—Other News

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 22, 1943—January employment in Wisconsin paper and pulp mills and allied industries maintained about the December, 1942, level, with 23,300 listed on the payrolls. The decline was 0.1% for the month, and 1.5% from January, 1942, when the number of workers was 23,700.

Weekly average payrolls were down 0.5%, from $826,000 in December to $822,000 in January. Payrolls are up 11.1% from a year ago, however, when the weekly average was $740,000, according to reports of the Wisconsin Industrial Commission. The hourly rate is now 81.1 cents for an average work week of 43.5 hours at average weekly pay of $35.28.

The trend was upward in the Milwaukee metropolitan area, where 2,090 workers were employed in January, a gain of 1.3% from December. Payrolls are up 3.1% to $76,081 per week. The container and converting plants are averaging 46.4 hours per week at an hourly rate of 78.5 cents, or $36.40 per week.

Kimberly-Clark Corporation now has its first around-the-clock shift for women at its mill at Kimberly, Wis. They are employed as testers in the coating plant and replace men on four six-hour shifts daily. Their work is part of the technical department.

Approximately 800 production workers at Milprint, Inc., Milwaukee, Wis., have been granted an average wage increase of four and a half cents per hour under an agreement reached with the CIO United Paper, Toy and Novelty Workers' Union. The new scale was approved by the War Labor Board in Washington, and is retroactive to September 26, 1942.

Final Safety School Session Meets

Mill workers of Neenah and Menasha held their third and final winter safety school session Tuesday evening of this week at the Menasha high school auditorium, with Charles H. Abel as chairman. The speaker was William D. Saltiel, special assistant to the attorney general of the United States. His subject was "What the War Means to You." Mr. Saltiel formerly was city attorney of Chicago, and has served on the staff of Thurman Arnold in prosecution of anti-trust cases. He has made a special study of crime and its relation to politics.

Bill Would Set Up Postwar Reserve

Under a bill introduced in the Wisconsin Senate, mills will be called upon with other industries to pay an additional ½ per cent on payrolls through the year 1945 as a "postwar reserve." The purpose is to protect the solvency of the state unemployment insurance fund against the demands anticipated when war industries slump. Included is a proposal to raise the weekly benefits from $17 to $20 in 1944 in order to meet higher living costs.

The bill was proposed by the Wisconsin advisory committee on unemployment compensation and is endorsed by the Wisconsin Industrial Commission. Higher wartime contributions would be based on the extent of payroll expansion over 1940 and on current levels of unemployment reserves. The levy of ½% would be general, but a second schedule would apply only to large employers whose payrolls have expanded 50% or more over 1940. A few plants with low reserves and 400% of expansion would pay a top rate of 5% instead of the current maximum of 4%.

Low Water in Reservoirs a Check on Floods

Water power for mills along the Wisconsin River has been freely supplied from the Wisconsin Valley Improvement Company's reservoirs, in anticipation of ample replenishment from the spring thaws. The upper reservoir system has only 19.65 per cent of its normal supply, while the entire system has 17.68 per cent. One of the largest, the Big Eau Pleine reservoir, is down to 472,000,000 cubic feet, a level 11 feet above the floor of its gates, as compared with its maximum capacity of 4,551,000,000 cubic feet. The emptying of the reservoirs will help prevent flooding along the river.

Opposes Withdrawal of County-Owned Lands

Opposition has been voiced to a resolution proposed by the board of supervisors of Marinette County, Wis., to permit withdrawal of county-owned lands from the forest crop law as administered by the Wisconsin Conservation Commission. The lure of high prices offered for land, with consequent income to the county, is back of the proposal. These lands receive annually ten cents per acre from the State of Wisconsin when set aside for reforestation, plus added income from the merchantable value of the timber when cut.

Marinette County now has 300,000 acres set aside for forestry and is considering the purchase of 3,000 acres of second growth timber in the town of Amberg from the Wisconsin Michigan Power Company at 75 cents per acre. The program was set up fifteen years ago largely through the efforts of R. B. Goodman, lumberman and capitalist, and is considered the most successful of the forest programs of any county in the state. Mills close to this region include the Marinette Paper Company, Badger Paper Mills, Inc., and the Falls Pulp and Paper Company.

John V. Ziemann Promoted

John V. Ziemann, general superintendent of the Marinette Paper Company, Marinette, Wis., has been promoted to production manager of the company, according to announcement of J. C. R. Whiteley, general manager. "This appointment is made," said Mr. Whiteley, "in recognition of Mr. Ziemann's outstanding leadership as an executive of the Marinette Paper Company, and of his accomplishments in quality improvements and increased production under difficult wartime conditions. This is also a further

step in the strengthening of our production organization to meet the challenge of the future."

Describes Fire Loss Prevention

Efforts made to protect the privately-owned forests of the Nekoosa-Edwards Paper Company from fire losses were described by F. G. Kilp, chief forester, in an address to the Kiwanis Club of Wisconsin Rapids, Wis., last week. He explained the causes of most fires, and said that since 1926 his company had had only 42 fires in its plantations. These were confined to 117 acres. He expressed himself in favor of proposed legislation limiting the diameter of trees to be cut for pulpwood or lumber. Mr. Kilp also showed movies of forest planting and harvesting operations.

R. W. Lyons Gives Talk on Forestry

R. W. Lyons, general manager of woodlands for the Kimberly-Clark Corporation, addressed the Engineers Club of the company at a dinner at Hotel Menasha at Menasha, Wis., March 17. His subject was "Forestry and Pulpwood Forests," and included movies of logging operations.

Mills Support War Drives

War efforts of paper mill employees are reaching added proportions. At Thilmany Pulp and Paper Company, Kaukauna, Wis., workers have purchased 4,823 war bonds totalling $158,075 for the year ending March 1 from the Thilmany Credit Union, according to W. C. Hess, president. In a recent Red Cross drive, workers of the Marinette Paper Company, Marinette, Wis., subscribed $650.

R. W. Evans Promoted to Major

Ronald W. Evans, former engineer at the Kimberly-Clark Corporation's mill at Kimberly, Wis., has received a battlefield promotion to major. He is with the United States Army in North Africa, and recently took part in the battle of Fiad Pass. He is now second in command of a battalion.

Griebenow-Schelhorn Engagement

Announcement has been made of the engagement of Miss Molly Griebenow of Owen, Wis., to Fred Schelhorn of Glenside, Pa. Mr. Schelhorn is a student of the Institute of Paper Chemistry, Appleton, Wis., where he will receive his Ph.D. degree at the spring commencement. He received his B.S. degree from the University of Pennsylvania, and his master's degree from the Institute. The wedding will take place this spring.

Fred Stocker Retires

Fred Stocker, president of the Atlantic Gummed Paper Corporation, 1 Main street, Brooklyn, N. Y., has announced his retirement from the corporation, effective March 22. Mr. Stocker was for many years associated with the Nashua Gummed and Coated Paper Company and in 1931 started with Abraham and Nathan Warshaw as the Atlantic Gummed Paper Corporation in Brooklyn, N. Y.

During the thirteen years in existence, they have had to move their location several times due to expansion.

Mr. Stocker will retire to his farm at Lake Hopatcong, N. J., for a long needed rest and hopes to become a farmer.

Prohibits Use of Specialty Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 24, 1943.—Non-essential uses of certain specialty papers used in wrapping, specifically glassine, greaseproof and vegetable parchment, have been prohibited through issuance of General Conservation Order M-286 by the WPB. It is estimated that this conservation of material, formerly used largely for transparent decorative wrapping, will effect a saving of from 10,000 to 15,000 tons per year.

Essential uses of this type of paper include packaging of food, ordnance, drugs and health supplies, as well as for tracing papers in industrial plants and for electrical insulation, the Pulp and Paper Division of WPB stated. Only about 15 mills with a total capacity of approximately 140,000 tons a year manufacture these grades of paper.

Prohibited uses include the wrapping or packaging at the point of manufacture or assembly of the following: woven or knitted textile products and paper products, except when oil-impregnated; metal products, except when oiled, greased or sterilized; wood products, rubber goods and plastic products, except when sterilized; candles and wax products; cosmetics, dentifrices, toilet materials and soap; laundry and dry cleaned products; leather goods and supplies; playing cards, bottled and canned goods, and candy products when used as an overwrap or liner, in conjunction with any other greaseproof, cellophane or similar transparent wrapping material derived from cellulose.

Use of these materials is also prohibited in the manufacture, wrapping or packaging of greeting cards, valentines and novelties, lamp shades, advertising displays, florist supplies, package gift wraps, decorations, toys, games, hair nets, jewelry, brushes and other toilet articles.

Explains Book Paper Quota

WASHINGTON, D. C., March 24, 1943—A publisher ordering books, or the printing of books, from a printer must deduct the tonnage of paper used from his own quota, under the terms of Limitation Order L-245, it is explained in Interpretation No. 1 of the order.

A printer who was not a publisher of books during the base period, 1942, has no quota of paper for publishing books in 1943, under the terms of the order. He is commercially engaged in printing books for the account of book publishers, and consequently the paper he uses for the publisher is charged against the latter's account. Therefore a "publisher" as defined in the order may not purchase books from a printer for resale unless they are charged to his own quota.

The interpretation goes on to point out that the order does not prohibit one publisher from purchasing books from another publisher where such books bear the imprint of the other publisher and where the paper for such books is deducted from the quota of the other publisher.

W. G. Chandler, Director of the Printing and Publishing Division, cautioned, however, that any concerted attempts on the part of the industry or any individual members of the industry to obtain disproportionate advantages under this provision of the order would necessarily lead to a re-examination of the controls established by the order.

Issues Plan for Conservation of Forests

Quebec Forestry Association Publishes Special Bulletin Presenting a Definite Program For Development of Resources of Province—Logging and Driving Alone Employs 25,000 Men For Full Time

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 22, 1943—The Quebec Forestry Association has issued a special bulletin laying down a definite program for the conservation and progressive development of the national resources of Quebec Province with especial application to forest areas. This incorporates a general summary and detailed analysis of resolutions adopted by regional congresses of the Association during the past year and a half, the pamphlet has been circulated to all M.L.A.'s, members of Parliament from this province, leading members of the clergy, heads of forest industries, forestry engineers, agronomists, chambers of commerce, as well as to teachers, parish societies and other regional groups.

Cites Importance of Forest Industries

In a foreword of the bulletin, statistics are given to indicate the importance of forests and woods industries in the economic life and progress of the province. Logging and driving alone give year-round employment to 25,000 men and part-time employment to 60,000 farmers who depend on this supplementary means of income to get by. In addition, farmers find a market for $2,500,000 worth of farm products in the logging camps.

Nearly a third of hydro-electric energy produced is utilized by forest industries, and transport of forest products requires 20% of all freight transportation facilities.

"The development of our forests is closely bound to that of agriculture and other natural resources," the bulletin declares.

The booklet includes an 11-point summary, prepared by the executive council of the Association, of the main principles in recognition of which all the regional congresses were in agreement.

Summary of Resources

This summary is as follows:

1. The importance of the natural resources within the economy of the Province, the necessity to inventory them, to conserve them, to exploit them rationally.

2. The urgency to draw up a general plan of conservation, restoration and utilization of the resources of the province.

3. That every locality, being directly interested in the elaboration of this general plan, must study its own situation and broadly co-operate in the preparation of a regional plan.

4. The participation of all professional, social and national groups in this vital study.

5. The necessity to change immediately in every region the people's mentality in regard to the conservation of natural resources. For so doing, we call upon the clergy, the state, the teachers, and upon all group leaders to participate actively in a large campaign of education and propaganda.

6. The primary place which the forest and the land hold in every region and the particular cares which they necessitate. For this purpose, a practical curriculum on sylviculture should be given in the agricultural schools.

7. The necessity of adopting a new formula of colonization which provides for the settling of the excess population whilst safeguarding the principle of rational utilization of the natural resources.

8. The necessity of strengthening existing colonies instead of founding new ones.

9. The necessity of organizing and exploiting for tourist traffic, the forests, mountains, lakes, rivers, sites.

10. The necessity of multiplication of the 4-H clubs for the development amongst the youth of a favorable state of mind towards conservation.

11. The necessity of setting-up an inter-departmental organization, a kind of co-ordination committee, formed of representatives of departments interested in the utilization of resources, in the national economy, in the development of the youth, in order to draw up a provincial plan of conservation.

To Check Unwise Exploitation

Several of the congresses urged extensive surveys, classification and re-allotment of forest resources in accordance with suitability of various areas for conservation and reforestation, development by forest industries, colonization and agriculture, and preservation of some sections as assets of the tourist industry. Steps were proposed to prevent excessive exploitation and abuse of privileges.

The St. Jovite congress proposed specialized research into means for utilizing products and by-products of the forests, and creation of cooperative selling agencies for forest and agricultural products. Education through the schools, libraries, movies, general propaganda and otherwise was urged by the Maniwaki congress, which also suggested encouragement for reforestation projects and creation of demonstration forests.

Urges Search for New Markets

Forest reserves and improvement of the condition of farm woodlots were proposed by the congress at Ste. Anne de la Pocatiere, which also urged a search for new markets for forest products.

Joe Teti Recovers from Pneumonia

The many friends of Joseph F. ("Joe") Teti, throughout the paper trade, will be pleased to learn that he is recovering favorably from a recent attack of pneumonia. He is purchasing agent for the P. L. Andrews Corporation, manufacturer of specialty envelopes and folding boxes, Brooklyn, N. Y. His experience in paper and pulp dates back to the year 1926, where he started with the Brown Company, in manufacturing, development and sales promotion. He later went with Gilman Paper Company as general superintendent of converting, finishing and shipping departments.

AMBEROL—Introduced in 1926, these phenol formaldehyde resin finishes are today vitally important in the production of military paints as well as camouflage lacquers.

PLASTICIZERS that "soften" buna type synthetic rubbers and make them easier to process . . . **MODIFIERS** that improve rubber's characteristics are new developments of the Company.

WATER RESISTANT FIBRE BOARD to carry water-perishable goods has been developed in cooperation with carton manufacturers. This use of synthetic resins finds many war-time applications.

TEGO RESIN FILM is a phenol formaldehyde type resin adhesive in sheet form. Interleaved with veneers of wood, then hot pressed, it produces the most durable plywood known.

PARAPLEX alkyd type resins retain their rubber-like properties even under extreme conditions. A typical use is as a coating for collapsible life rafts carried on Allied planes.

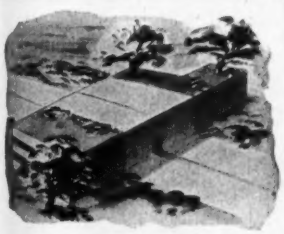
War-time Resins

FROM PEACETIME RESEARCH

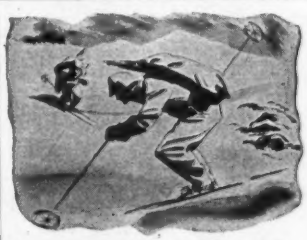
YEARS of work in The Resinous Products & Chemical Company laboratories during peacetime are directly responsible for the many war products you see pictured here.

Practically all of our synthetic resins were developed to meet other-than-war needs. They are all fighting today, but after the war has been won, they will resume their previous jobs and take up many new ones.

UFORMITE 430 AND 500 are urea formaldehyde types of resin adhesives. Millions of feet of plywood using these bonding agents are now being used in military applications.



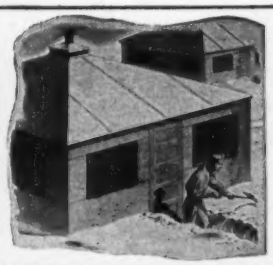
AQUAPLEX, the 10-year-old resin emulsion paint base, started a revolution in the paint industry. It is the pioneer in the field of exterior as well as interior "wallpaper" paints.



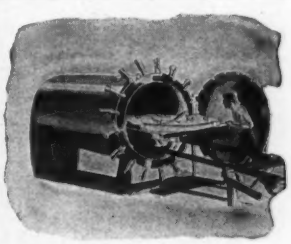
UFORMITE CB-531 is a recently developed type of urea formaldehyde cold-setting resin adhesive, complying with *all* Government specifications for cold-setting plywood.

DURAPLEX alkyd type finishes have found wide wartime use where extreme durability is required. Many American tanks and jeeps are painted with these coatings.

ION EXCHANGE RESINS are used to supply large quantities of de-ionized or salt-free water—equal to distilled water—to industries such as synthetic rubber processors,



AMBERLITE PR-51 AND PR-23 were developed especially for Douglas Fir. Among many wartime uses are pontoon bridges, assault boats, Army truck bodies and prefabricated houses.



AMBERLITE PR-14, a synthetic resin of the phenol formaldehyde type is widely employed for rubber bag plywood molding and in aeronautical and marine plywood.

THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA.

Obituary

J. G. Maclaren

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 22, 1943—The death occurred here last week of James Gordon Maclaren, aged 66, who until his retirement was prominent in the lumber and paper business.

Mr. Maclaren was born in Wakefield, Quebec, on May 18, 1876. He was the eldest son of the late David Maclaren of Ottawa and received his education at Ridley College school, St. Catherine, Ontario. He took part in the South African war, being in that country when it started, and served with Bethume's Mounted Infantry throughout the struggle.

Mr. Maclaren subsequently returned to Canada where he was one of the leaders in the lumber and paper mill business. During the first Great War he served with the rank of major and was severely wounded in Belgium in August, 1916. Mr. Maclaren took a keen interest in various sports and was also a member of a number of professional organizations.

He is survived by his wife, the former Menote Isbester, two sons, David Maclaren of Kingston, Ont., and Captain James Maclaren, R.C.E., at present with the Canadian Armed Forces overseas, one brother, Brig.-General C. H. Maclaren, of Ottawa, and two sisters.

William C. Geer

HOBE SOUND, Fla., March 15—William C. Geer, vice-president and director of the International Pulp Company, 41 Park row, New York, died at his winter home at Hobe Sound, Fla., on March 15. He was 83 years old.

Mr. Geer was born in New York City and had lived most of his life in Troy, N. Y., where he was a director of the Manufacturers National Bank and formerly president of the Albia Box and Paper Company.

Surviving are his wife, Mrs. Blanche Van Everey Geer; a daughter, Mrs. Norman Kley; a sister, Mrs. Leslie Snyder, and a granddaughter, Mrs. Carl Espy, Jr. The funeral will be in Troy.

Michael J. Foley Dead

Michael J. Foley, aged 76, a well known papermaker, died February 27, 1943 at the home of his son, Andrew W., 4821 Fifth street, Meriden, Miss.

Mr. Foley had spent over fifty years in the paper industry and for ten years before his retirement was connected with The Northwest Paper Company, Cloquet, Minn. He was a recognized authority on books and bond papers.

W. E. Copenhaver

W. E. Copenhaver, secretary of The Bauer Bros. Co., Springfield, Ohio, following a short illness of pneumonia, died at the residence of his daughter, Mrs. W. B. Quinn.

He was born April 9, 1865 in Baltimore, Md., and was educated there, later coming to Springfield, where in 1895 he became associated as Superintendent of Manufacture with the former Foos Mfg. Co., now The Bauer Bros. Co., thus his passing terminates a connection of 48 years.

Mr. Copenhaver was active in church, civic and fraternal circles and his genial personality will be missed. Surviving are two sons, two daughters, five grandchildren and two great-grandchildren. Interment was in Springfield, March 11, 1943.

Corporal William S. Collins

BOSTON, Mass., March 22, 1943—Funeral services for Corporal William S. Collins, 37, formerly a salesman for the Groveton Paper Company, Inc., were held March 20 at his late residence, 223 Centre street, Quincy, Mass. Rev. Thomas A. Bridges, rector of St. Chrysostom's Church, officiated.

Corporal Collins, who was in the service, died in San Francisco March 6. He was graduated from the Quincy High School and Northeastern University and was with the paper company before his induction into the army. He was stationed at Topeka, Nev., and was on a short furlough in California, when he died of a heart attack. He is survived by his father, John H. Collins. The burial was in Mt. Wollaston Cemetery.

N.A.P.A. Urges Degrading of Paper

The National Association of Purchasing Agents urged its members to change paper specifications immediately. Federal procurement departments are already taking steps to revise government specifications on many types and grades of paper excepting only the rag papers, such as map, chart, blueprint, tracing, technical and papers of a permanent nature, it was pointed out, and business must follow suit.

In suggesting a degrading of pulp furnished, the committee recommended the use of greater amounts of de-inked book paper, increased amounts of various other grades of waste paper, slightly more clay in papers, but not exceeding 5% in fine papers, and the use of ground wood pulp in many types and grades of paper where it has not been permitted in the past.

Commenting on the frequent accusation hurled at the War Production Board that "the government is taking all the paper" the committee said: "Those close to the situation believe the government may take less than 10% of the 14,500,000 tons to be required. That may change the supply situation later."

Cooperation must be obtained from insurance companies, financial institutions, the county clerk's office, the advertising office and every user, the report added, concluding:

"There will be paper for every one but every one will have to do his share."

Charles A. Esty Made Director

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 22, 1943 — Charles A. Esty, president of Carter, Rice & Co., Corp., was elected to fill a vacancy on the Board of Directors of the New England Paper Merchants Association, Inc., caused by the resignation of J. R. Livingstone, of the Kendall Paper Company, Cambridge, Mass., at a meeting of the Board in the Association office, Boston Chamber of Commerce Building, March 15.

Walter R. Guild, who has been executive secretary since February, 1941, was continued in office for another year.

FIGHTING SLIME IS "OLD STUFF" TO ARMCO STAINLESS STEEL!

Fighting slime is an old familiar job to ARMCO Stainless Steel. Before the war many paper mill men were using this smooth, tough, hard metal wherever bacteria threatened —in Fourdriniers, vats, flow boxes, flumes, stuff chests and other important applications.

You see, ARMCO Stainless is so easily kept clean and free from corrosion that there is little chance for slime-forming bacteria to "get a toehold." Leading mills report less breakage, fewer wash-up interruptions, less plugging of felts and blinding of wires. This keeps production on an even keel.

Right now ARMCO Stainless is stoutly fighting a different kind of battle. *This tough metal naturally gets the toughest war jobs*—such as machine gun turrets, mine sweep parts, superchargers, aircraft exhaust systems, carburetors, oxygen tanks and submarine stoves. When our victorious men and metals come home, ARMCO Stainless will be ready to go back to work helping you win *your* never-ceasing battle against slime. Meanwhile, is there any information we can give you? The American Rolling Mill Co., 1041 Curtis St., Middletown, Ohio.

MADE OF ARMCO STAINLESS STEEL

THE AMERICAN ROLLING MILL COMPANY

CONSTRUCTION NEWS

Under limitations order L-41 all projects involving expenditures of more than $5,000 must be specifically approved by the War Productions Board. The status of projects reported herewith under the provisions of the order is not known.—EDITOR.

Brooklyn, N. Y.—The International Mailing Tube and Wrapper Company, 29-05 Review avenue, Long Island City, manufacturer of cardboard mailing tubes, paper wrappers, etc., has leased space in industrial building at 425 Greenpoint avenue, Brooklyn, aggregating about 16,000 square feet of floor space, and will occupy at early date for expansion.

Cincinnati, Ohio—Fire recently damaged the plant of Western Paper Goods Company, 1224-28 West Eighth street, commercial paper products. An official estimate of loss has not been announced, but is reported as slight. Damage will be replaced at early date.

Chicago, Ill.—The Mid-States Gummed Paper Company, 2515 South Damen street, manufacturer of gummed and other processed paper stocks, has leased space in industrial building of the General Waxed Paper Company, 1700 South Canal street, and will occupy for plant. It is understood that capacity will be increased at new location.

Savannah, Ga.—The Union Bag and Paper Corporation, manufacturer of kraft wrapping and bag papers, has work under way on new one-story building at local mill, previously referred to in these columns, to be used for handling tallol extraction, a byproduct of the sulphite process in use at plant. New structure will be pushed to early completion. No estimate of cost announced.

New York, N. Y.—The Famous Paper Box Company, 121 West 30th street, manufacturer of paper boxes and containers, has leased space in building at 655 Sixth avenue, and will occupy for plant, with increased production and operating facilities at new location.

New Bedford, Mass.—The National Pairpoint Company, Prospect street, has been chartered with capital of $500,000, to operate a plant in this vicinity for the manufacture of paper products of various kinds. Isaac N. Babbitt is president, and Henry W. Keyes, 39 Nickerson road, Newton, treasurer. It is understood that operations will begin at early date.

Cleveland, Ohio—The Acme Paper Stock Company, 6204 Central avenue, commercial paper goods, has completed plans and is arranging for early erection of new addition to plant, recently referred to in these columns, to be one-story, about 47 x 130 feet, designed for storage and distribution service. It is reported to cost close to $30,000, including equipment.

New York, N. Y.—The Winston Tube Company, a new concern in city to manufacture and deal in paper tubing and kindred products, has leased a floor in building at 13 East 16th street, and will occupy for plant and company headquarters.

Holyoke, Mass.—The National Blank Book Company, foot of Appleton street, manufacturer of commercial paper products, has begun erection of new addition to plant. General erection contract has been awarded to Bathelt Construction Company, 54 Appleton street, Holyoke. Estimate of cost has not been announced.

Burlington, N. J.—Neidich Process, Division of Underwood-Elliott Fisher Company, Burlington, manufacturer of carbon papers and other processed specialties, is reported to be planning rebuilding of portion of plant at East Pearl and Tatham street, recently destroyed by fire, with loss reported over $35,000, including equipment.

Montreal, Que.—Consolidated Paper Corporation, Ltd., Sun Life Building, Montreal, has discontinued newsprint manufacture at its Wayagamack Division mills, Cap Madeleine, Que., owing to shortage of electric power, as well as other factors in present situation in industry. Similarly, the company recently has curtailed newsprint manufacture at its other division plants, for like reasons.

Newsprint Production Declines

Production of newsprint in Canada during February 1943 amounted to 221,807 tons and shipments to 222,383 tons, the News Print Service Bureau reports. Production in the United States was 64,358 tons and shipments 60,147 tons, making a total United States and Canadian newsprint production of 286,165 tons and shipments of 282,530 tons. During February, 13,796 tons of newsprint were made in Newfoundland, so that the North American production for the month amounted to 299,961 tons. Total production in February 1942 was 381,665 tons.

The Canadian mills produced 134,654 tons less in the first two months of 1943 than in the first two months of 1942, which was a decrease of twenty-two and eight-tenths percent. The output in the United States was 26,712 tons or sixteen and six-tenths percent less than in the first two months of 1942, in Newfoundland production was 28,531 tons or fifty-one percent less, making a total decrease of 189,897 tons, or twenty-three and five-tenths percent less than in the first two months of 1942.

Stocks of newsprint paper at the end of February were 109,938 tons at Canadian mills and 13,913 tons at United States mills, making a combined total of 123,851 tons compared with 120,216 tons on January 31, 1943, and 169,371 tons at the end of February 1942. There was some further accumulation of tonnage at points from which water shipments will later be made.

National Pairpoint Co. Formed

[FROM OUR REGULAR CORRESPONDENT]

NEW BEDFORD, Mass., March 22, 1943—The National Pairpoint Company, Prospect street, paper and paper products, has been incorporated with capital stock of $500,000; 50,000 shares $10 each, according to articles of incorporation filed at the office of the Secretary of the Commonwealth, Boston. Isaac N. Babbitt is president; Henry W. Keyes, 39 Nickerson road, Newton, treasurer, and Charles F. Brown, clerk.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending March 20, 1943

STOCKS

	High	Low	Last
A. P. W.	2¾	2½	2¾
Armstrong Cork Co.	33¼	32	32⅜
Celotex Corp.	12	11⅝	11⅝
Celotex Corp., pf.	86	85	85
Certain-Teed Products Corp.	5⅜	5¼	5½
Certain-Teed Products Corp., pf.	50⅞	48	50⅛
Champion Paper & Fibre Co.	18½	18½	18½
Champion Paper & Fibre Co., pf.	103½	103¼	103½
Congoleum Nairn Co.	19¼	18¾	18¾
Container Corp. of America	22½	21⅞	22⅛
Continental-Diamond Fibre Co.	13¾	12	12½
Crown-Zellerbach Co.	13⅜	13⅛	13⅜
Crown-Zellerbach Co., pf.	89½	87½	89
Dixie-Vortex Co.	13⅜	13⅛	13⅛
Dixie-Vortex Co.—A.	39¾	38¾	39¾
Flintkote Co.	19¼	18	18
Robert Gair	3⅜	3⅛	3⅜
Robert Gair, pf.	....	....	....
International Paper Co.	11⅞	10½	11½
International Paper Co., pf.	58⅜	56¼	57½
Johns-Manville Corp.	80¾	78	78¾
Johns-Manville Corp., pf.	133¾	133½	133½
Kimberly-Clark Corp.	28½	27½	28½
MacAndrews & Forbes	23⅜	23⅛	23¼
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	36¾	35½	35⅞
Mead Corp.	8⅞	8½	8⅞
Mead Corp., pf. A—6%	88½	88¼	88½
Mead Corp., pf. B—5½%	76	74½	74½
Paraffine Companies, Inc.	42	39¼	39¼
Paraffine Companies, Inc., pf.	100	100	100
Rayonier, Inc.	13⅞	12¾	13¼
Rayonier, Inc., pf.	29	29	29
Ruberoid Co.	22⅞	22¾	22½
Scott Paper Co.	40¼	39½	39½
Scott Paper Co., pf.	112½	112¼	112⅝
Sutherland Paper Co.	31	29	29
Union Bag & Paper Corp.	10⅜	9⅞	10
United Paperboard Co.	5	4⅜	4⅝
U. S. Gypsum Co.	68	66	68
U. S. Gypsum Co., pf.	....	....	....
West Virginia Pulp & Paper Co.	14½	14⅜	14⅜
West Virginia Pulp & Paper Co., pf.	106¼	106	106¼

BONDS

Abitibi Pulp & Paper Co. 5s '53	60	59½	60
Celotex Corp. 4½s '47	102⅜	102	102
Certain-Teed Products Corp. 5½s '48	99	97	99
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	107	106⅜	106½
International Paper Co. 5s '47	104½	104	104⅛
Mead Corp. 3¼s '55	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending March 20, 1943

STOCKS

	High	Low	Last
American Box Board Co.	6⅛	6⅛	6⅛
Brown Co., pf.	....	....	....
Great Northern Paper Co.	34	34	34
Hummel-Ross Fibre Corp.	4¾	4½	4¾
National Container Corp.	11	10⅝	10⅝
St. Regis Paper Co.	3	2¾	2⅞
St. Regis Paper Co., pf.	124½	123½	123½
Taggart Corp.	3⅞	3¾	3⅞

BONDS

American Writing Paper Co. 6s '61	91⅛	91	91

Hinde & Dauch Earns $2.29

The Hinde & Dauch Paper Company for 1942 reports a net profit, after Federal income and excess profits taxes of $1,979,000 and $200,000 special post emergency reserve, was $1,003,036, equal to $2.29 a common share, against $1,112,195, or $2.59 a share on common the year before.

Nekoosa-Edwards Votes Dividend

Announcement was made by John E. Alexander, president, last week that a dividend of 50 cents per share has been declared by the Nekoosa-Edwards Paper Company, Port Edwards, Wis., on its capital stock. The dividend will be paid March 31 to stock holders of record as of March 20.

Bathurst Issues Report

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 15, 1943—The annual report of the Bathurst Pulp and Paper Company for 1942 shows that despite a moderate improvement in total sales, net profits totalled $750,114 as compared with $918,447 in 1941. The balance sheet shows a marked gain in the liquid position, cash and securities being up from $1,006,748 to $1,433,574, and net working capital up $577,272 to $4,226,981. Inventories, including expenditures for current season's logging operations, at $2,970,157 show an increase of $372,607. Most of this increase, the report says, is due to current season's logging expenditures and an increase in stocks of finished products which were at an abnormally low level at the end of 1941.

During the year Bathurst increased its output from 105,993 tons to 110,204 tons. Three departments showed gains: kraft liner and corrugating board, up from 47,357 tons in 1941 to 53,513; unbleached sulphite, up from 20,932, to 22,034 tons, and boxboards, up from 18,942 to 20,182 tons. These groups represented 86.86% of total production. The balance was newsprint and miscellaneous specialties, with output down from 18,762 (17.70% of the total) to 14,475 tons or 13.14%.

St. Regis Nets $1,680,091

The St. Regis Paper Company reports for 1942 a consolidated net income of $1,680,091 after charges and taxes, compared with $3,228,080 in 1941. Although quarterly payments were resumed on the preferred stock last July, the arrears on this stock at the close of 1942 amounted to $70 a share, or a total of $3,012,310.

The income account does not reflect the equity of the company in the undistributed net income of foreign subsidiaries of about $200,000 in 1942 and $82,000 in 1941. The company's equity in the undistributed net income of the Taggart Corporation of $413,255 last year and $489,590 in 1941 also is not included. Last year the company increased its holdings of Taggart Corporation from 230,000 shares to 339,253 of common stock at a cost of $374,835.

Consolidated Earns 15 Cents

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 22, 1943—The annual report of the Consolidated Paper Corporation for the year ended December 31, 1942, shows decreases in sales and earnings but substantial improvement in the financial position.

L. J. Belnap, president, in submitting the report of the board of directors, states that the decline in revenues was due to wartime government requirements, increased costs and low "ceiling" sales prices of manufactured products.

Physical volume (tons) of all pulp and paper products, he notes, decreased approximately 7% and sales value 6%.

Net income in 1942 was $396,290, including $55,-

314 profit from sales of securities and $257,326 from the Commodity Prices Stabilization Corporation Limited fund, compared with net income of $880,220 for 1941. The above income equalled 15 cents a share in 1942 against 34 cents in 1941.

Bond interest requirements were covered 1.15 times in 1942 against 1.33 in 1941.

In addition to the above net income, a profit of $499,969 realized on bonds redeemed through sinking fund operations was transferred to earned surplus. Surplus now stands at $3,540,785 against $2,675,007 a year ago.

Dennison Co. Earnings Lower

The Dennison Manufacturing Company and wholly owned subsidiaries for 1942, reports net profit after provision for income and excess profits taxes in amount of $1,702,316, was $639,990, equivalent to 91 cents a common share, compared with $816,917, or $1.39 a share, in 1941. Net sales of $17,223,336 last year were largest in company's history, comparing with $16,543,344 in 1941. According to report, post-war refund portions of Federal and Canadian income and excess profits taxes in amount of $155,811 are included in net profit for 1942.

Donnacona Earns 28 Cents

The Donnacona Paper Company for 1942, reports a net income, Canadian currency, $105,837, equal to 28 cents each on 376,572 shares of common stock, compared with $104,656 or 28 cents a share in 1941.

Union Bag Nets $1.70

The Union Bag and Paper Corporation for the year to December 31, reports net income was $1,890,401, or $1.50 a share, against $2,168,313, or $1.70 a share in 1941. Net sales were about the same as in 1941, $27,915,174, against $27,871,007. A new paper machine was put into production at Savannah. Commenting on it, Alexander Calder, president, declared that, although the company faces the possibility of labor and transportation shortages, it is "fortunate in having a completely integrated manufacturing operation adjacent to ample wood supply."

Champion Earns Less

The Champion Paper and Fibre Company and subsidiaries for the twelve weeks to January 31, reports a net profit of $478,802 equal to 64 cents a common share, against $839,746 or $1.30 a common share for 12 weeks to February 1, 1942. Consolidated net income for three quarters or 40 weeks ended January 31, 1942 amounted to $2,088,486 or $3.04 a common share, against $2,291,746 or $3.41 a share for similar period of previous year.

Standard Co. Votes Dividend

The Standard Paper Manufacturing Company, Richmond, Va., will pay a dividend of 1½% on its $50 par value 6% preferred stock April 1, W. Byron Taylor, secretary-treasurer of the company, announced.

N. E. TAPPI Hears R. A. Hayward

The New England Section of the Technical Association of the Pulp and Paper Industry met at the Roger Smith Hotel, Holyoke, Mass., on March 19, 1943. W. L. Foote of the B. F. Perkins Company presided as chairman. About 90 attended.

M. J. Maguire reported for the nominating committee (Bill Russell and Jock Kennedy) and the following were elected: Chairman—W. L. Foote, B. F. Perkins & Son; Vice Chairman—L. B. Tucker, Crane & Company; Secretary—Henry L. Mellen, Hercules Powder Company; Executive Committee—Norman I. Bearse, Champion-International Company, R. H. Doughty, Fitchburg Paper Company, H. U. Kiely, American Writing Paper Company, Werner Kauffman, Kupfer Bros. Company, Fred Schneider, Hampden Color and Chemical Company, F. A. Strovink, American Cyanamid & Chemical Company, C. H. Child, Merrimac Paper Company, and Phil Barnhart, Westfield River Paper Company.

R. A. Hayward, President of the Kalamazoo Vegetable Parchment Company and President of the Technical Association, was the principal speaker and discussed current affairs in the industry.

R. G. Macdonald, Secretary of TAPPI, talked briefly regarding the new TAPPI Bulletin.

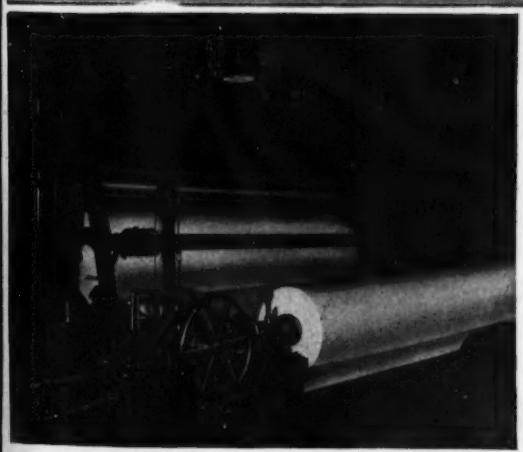
Those present included R. W. Aldersen, F. E. Bahrenburg, P. S. Barnhart, Harold A. Bolles, P. S. Bolton, J. M. Booth, C. M. Bryan, Mr. and Mrs. George S. Carroll, Mr. and Mrs. L. Crouse, Thomas Flaherty, Stephen Florio, W. L. Foote, Roger C. Griffin, R. J. Hemphill, Arthur L. Hobday, H. D. Johnston, Werner Kaufman, C. H. Kent, R. E. Kilty, A. W. Lake, F. W. Lyon, R. G. Macdonald, Milton J. Maguire, J. G. McNaught, H. L. Mellen, John C. Moller, P. R. Nelson, Elinore Norris, Charlie O'Neill, H. A. Otto, R. W. Pattison, John Pauly, B. F. Perkins, J. Lewis Perkins III, R. M. Preston, E. A. Radant, E. C. Reid, Fred W. Schneider, A. E. Shattuck, Gordon Shattuck, L. W. Shattuck, John F. Shea, Homer W. Sinclair, Charles P. Slocum, L. N. Smith, F. A. Strovink, M. and Mrs. George W. Sullivan, Philip C. Toye, Edward Vannett, Arthur P. Wagenknecht, A. Kenneth Warner, G. E. Williams and L. M. Yoerg.

F. B. Burns To Manage Container Plant

OGDENSBURG, N. Y., March 22, 1943—Francis B. Burns has been named manager of the new plant of the Cleveland Container Company which will be located in the building formerly occupied by the International Harvester Company on Main street. Mr. Burns is also mayor of this city. W. F. Walker, president of the company which manufactures paper tubes and cases, conferred here this week with Mayor Burns and other city officials who were largely instrumental in bringing the concern to this territory.

The new concern is expected to start operations in its new plant early in April and will employ about 50 persons. The plant will be the fifteenth unit set up by the concern which now employs about 2,000 persons and it is expected that the local branch will be enlarged at an early date.

"more evenly wound rolls"
SAYS ST. CROIX PAPER COMPANY



Cameron *Mill-Type Web Tension Control* insures uniform density of rewound rolls and fewer web breaks. Water-cooled friction device prevents overheating at high speeds.

"In comparison with the manual control of tension, we have found that your Constant Tension Unwind Stands give more evenly wound rolls: all rolls wound the same, as the tension is always the same, whereas with manual control it depends on the man operating the winder: less winder breaks: and better starts at the core."

Thus the St. Croix Paper Company, Woodland, Maine, well expresses some of the outstanding features of CAMACHINE Constant Tension Unwind Stands. Additional data about these machines are available in an interesting folder, with detailed illustrations and drawings, which are available on request.

CAMERON MACHINE COMPANY
61 Poplar Street, Brooklyn, New York
MIDWEST OFFICE: Harris Trust Building, 111 West Monroe Street, CHICAGO

CAMACHINE

Indianapolis Demand Active

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 21, 1943—Paper demand for most of the items continued heavy last week. In fact demand is beyond the ability of the trade here to supply. This is not true of some items, but it is true of the great majority.

Newspaper publishers naturally were relieved when it was announced that the expected cut of 10 per cent April 1 had been deferred to midyear or later. There are many in this section who believe the cut will not be made at all. In the meantime lineage is sinking so the average paper is getting along very well with the present stocks.

With the approach of spring the building trades are wondering how much roofing and building paper they will need this year. In the entire central Indiana section last year, construction was curtailed to absolute essentials. There was little of the better class residential construction because of wartime restrictions. This year it is believed there will be more housing units constructed for defense workers. Dealers generally have fair stocks on hand now of both roofing and building paper.

Local paper box manufacturers are working to the limit of their raw materials. Many of them have branched out into container fields formerly served by wood. One of the principal cases is that of the manufacture of egg cases for the produce trade. Some will put out containers this year for various fresh vegetables that for years have used the wood container.

Demand for waxed paper is increasing slightly. The prospect of rationing of milk and butter, cheese and other such items, likely will mean a decrease in this field. Demand from the ice cream trade already has dived, due to war restrictions.

Tissues were moving nicely last week as were bags and wrapping paper with no price changes.

Mills were reported taking a trifle more interest in better rags with best grade waste paper in good demand and strong in price. Because of the stronger market, prices are hugging the ceiling.

Eastco Merchants' Salesmen Meet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 22, 1943—A very interesting luncheon-meeting was held in the Parker House March 10 by the Boston paper merchants handling products of Eastern Corporation, Bangor, Me. The attending salesmen were given a presentation of Eastern's 1943 advertising and promotional plans by Ralph Will, the company's advertising manager. The meeting was then addressed by John Massengale, Eastern's sales manager. John Calligan, district sales manager, was chairman of the meeting. Those attending included Messrs. Alsen, Walters, Donnelly, Poore, Little, Ferry, Beatty, Brooks, Colcord, and Hall of John Carter & Co., Boston; Halloran, Bourque, Clark, Clausmeyer, Flannery, Ginty, Mather, Rhodes, Robertson, Wallin, and Gray of Century Paper Company, Boston; Conroy, Ashley, and Callam of Cook-Vivian Company, Boston; Lockhart and Crowley of Von Olker-Snell Paper Company, Boston; Dearden of Butler-Dearden Paper Company, Worcester, Mass.; Davis, Dumouschel, and Maxwell of Narragansett Paper Company, Providence, R. I., and Mattox, Morang, and Bean of the Barta Press, Boston.

"glad to dispose of any other pump in the place...except WARREN!"
Not cheerful words these days if you happen to require a pump in a hurry for one of the many important services in your mill. Yet these words, spoken by a well known paper mill executive, and the fact that a second hand Warren Pump is rarely advertised, bear convincing testimony of the high regard in which this equipment is held by discriminating users.
This enviable reputation has been zealously guarded . . . and will continue to be . . . and the old New England craftsmanship which has been an important factor through the years is now contributing its full share to the war effort.
Warren Steam Pump Company, Inc.
WARREN, MASSACHUSETTS

CANADA TAKES EXCEPTION

Continued from page 7

its own investigation. Through the WPTB the costs of individual mills were submitted to the OPA. Every publisher in the United States knew of these negotiations, it is stated. Finally, when it became clear that Canadian manufacturers were not getting a new dollar back for each one spent, Ottawa itself took a hand. Negotiations with the OPA came to a head last month with the announcement of a $4 a ton price increase.

"Put mildly," the article states, "Canadian manufacturers are disappointed. They attribute the smallness of the increase to political pressure on Washington by certain American publishers. Even Donald Gordon, head of the WPTB, has expressed dissatisfaction. His opposite number in Washington, Prentiss Brown, has admitted the strength of the Canadian case."

"The newsprint price matter," the writer continues, "is by no means closed. Canadian manufacturers have told and retold their story. They continue to tell it, are redoubling their efforts to secure what they consider an equitable price for their product."

Canadian authorities suggest that confusion surrounding the issue of control of paper production is increased by the contention of some interests in the United States that, because newsprint uses less wood per ton than do fine papers and specialties, and that wood is the real cause of scarcity, newsprint should be left alone and other types of paper reduced.

It is pointed out that while writing paper does require more wood per ton thans newsprint, many fine paper makers use large amounts of waste paper and keep their consumption of wood pulp down to about the same proportion as the newsprint industry. It is emphasized that the real reason for the great increase in demand for fine papers lies in the tremendous growth in official reports, documents and questionnaires and in the enormous increase in the use of letter papers due to wartime conditions.

Customs Decision on Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C. March 18, 1943—Two paper decisions have been handed down by the United States Court of Customs and Patent Appeals.

One was in the case of the Jacksonville Paper Company against the United States. In this case dealing with reappraisement proceedings was to determine the dutiable value of kraft paper in which the importer claimed that entry was made under duress at prices higher than the invoice value. In this case the United States Customs Court sustained the entered value because of the failure of the importer to comply with certain statutory provisions and the Court of Appeals in its decision affirmed that judgment.

The other case was the United States against W. X. Huber Company. In this case merchandise invoiced as coffee filter papers was assessed at 6 cents per pound and 20% as tissue paper cut to shapes. The importer protested that it was properly dutiable at 5 cents per pound and 15% as filtering paper. The United States Customs Court sustained that protest but the Court of Appeals reversed that judgment.

Channels Through Which Paper Flows

At the recent convention of the National Paper Trade Association a survey was developed for the purpose of determining the channels through which paper is flowing at the present time. Many attempts have been made in the past to obtain this information but this is the first time that a standard form has been worked out which is generally acceptable to the entire paper industry and also to government agencies. Statistics will be gathered from the wholesale distributors and combined with those statistics of the mill groups on Direct Sales, which compilation will give the overall picture of the paper industry as to just where paper is going during this war economy.

It is extremely important that this information be gathered at this time in order to present the proper picture to the various governmental agencies as to just what place the paper industry occupies in the war effort. This information will be transmitted to the War Manpower Commission, the Pulp and Paper Branch of the War Production Board, and the Office of Civilian Supply of the War Production Board. The survey is being made on the tonnage items handled by the paper merchants and does not cover all paper and paper products.

The survey is broken down to cover fifteen items as follows:

Government Agencies—Federal, State, Municipal, County—(including Red Cross, etc.).

Manufacturers and Other Business *Principally* Engaged in War Work.

Manufacturers and Other Business *Partially* Engaged in War Work.

Manufacturers and Other Business *Not* Engaged in War Work.

Public Health, Including Hospitals, Sanitariums and Household Papers.

Transportation—Air, Rail, Bus, Truck.

Utilities and Communications.

Educational, Religious and Charitable Institutions.

Banks, Insurance Companies, Office Buildings.

Factory Food Packaging.

Retail Food Wrapping and Packaging.

Retail Wrapping and Packaging (Other Than Food).

Laundries, Cleaners (Other Service Outlets).

Hotels, Restaurants, Food Dispensaries.

All Others.

The survey covers both fine and wrapping papers and the initial period for study is the month of March, 1943.

J. J. Rowe To Be Sorg Director

John J. Rowe, president of the Fifty Third Union Trust Company, was elected to the Board of Directors of the Sorg Paper Company, Middletown, Ohio, at the annual meeting of stockholders. Other board members and all officers were reelected.

Stockholders were told that the company's 1942 net earnings, after taxes of $391,000, were $319,147. This compares with a 1941 net of $499,051, after taxes of $426,453.

The decline in earnings reflected the decrease in net sales from $8,020,644 in 1941 to $7,360,541 in 1942.

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 116 March 25, 1943 No. 12

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

American Pulp and Paper Mill Superintendents Association, Twenty-fourth Annual Convention, Commodore Hotel, New York, June 15-17.

PRODUCTION

Criticism has frequently been directed at the relative low average production per worker in many plants producing war goods. The loss by strikes of essential production must, of course, be included in any summation of productive capacity. It has been stated by some employees in war plants that the full productiveness of all workers is much less than formerly and that the current estimate of manpower considered essential for the war effort, would appear a much less serious threat if more workers produced more fully according to their actual ability. The inference implied in some of these criticisms is that the unions are more concerned in providing workers with overtime at extra pay than in increasing production per worker. Despite the huge productivity of the country in supplying the requirements of war, fully one-third of potential production, it has been pointed out, has yet to be obtained from the men and women now employed. Absenteeism is said to be one deterring factor in accelerating production. Workers are, however, absent for various reasons and often through no fault of their own, such as sickness, accident, temporary lack of materials and for other causes. All these things must be properly considered to arrive at any accurate analysis of absenteeism and to ascertain to what extent the workers are at fault.

The manpower situation has many aspects and a general consideration of it as a whole was clearly stated in the resolution adopted by the War Congress of American Industry, sponsored by the National Association of Manufacturers last December. In reference to workers' absences the resolution stated: "Everything possible must be done to reduce and eliminate involuntary absenteeism. Management has embarked on an enlarged program for assuring plant safety and reducing accidents. Sickness keeps many American workers out of full production. Management's attention to health and nutrition programs, even greater than that now being given will help solve this problem. In addition to these involuntary causes, 'day after pay-day' absenteeism and other types of voluntary absenteeism have grown by leaps and bounds. In this field, employees themselves must shoulder the bulk of corrective responsibility. Management can stimulate employees' appreciation of the need of unremitting effort, but employees themselves must come to a realization that being 'AWOL' is just as serious an offense in the factory as on the fighting front. In the interest of all-out production, government, management, and labor should make every effort to see that every war worker is making the maximum use of his best skill."

In commenting on labor conditions the current issue of *The Guaranty Survey*, published by the Guaranty Trust Company of New York, says in part: "The average scheduled work week in durable goods industries exceeded 48 hours in November, according to the Department of Labor, showing an increase of 0.7% over the October figure and a gain of 10.3% over that for November, 1941. The average number of hours actually worked, however, was only 46, absenteeism and labor turnover reducing the length of the workweek by at least two hours. For all manufacturing industries combined, the average number of hours actually worked was 44, which is 1% above the October average and 9.3% above that a year earlier. Average hourly and weekly earnings have increased sharply, especially in the durable goods industries, where the hourly average for November, including overtime premiums, shift differentials, etc., was $1.003, or 16% higher than a year ago, and the weekly average of $46.27 was 30.9% higher than in November, 1941. The number of new workers employed in industry during the last two years has nearly equalled the number of men added to the armed services, according to the estimates of the National Industrial Conference Board. In 1942 alone, 65 civilian workers were added for every 100 men joining the fighting forces. Altogether, about 58,650,000 persons were at work or in uniform at the close of last year. . . . The number engaged in non-farm work at the end of the year of 1942 is placed at 49.8 million, as against 43.2 million a year earlier and 38.7 million at the close of 1940."

In discussing the longer work week *The Survey* pointed out that another measure designed to conserve manpower is the President's executive order establishing a minimum wartime work week of 48 hours. . . . It was announced at once that the 48-hour minimum would go into effect on March 31

and that it would be confined, for the time being, to 32 labor shortage areas; but with the prospect that, as manpower needs increased, additional areas would be designated. A few days after the order was issued, the commission made public a list of 102 cities in which acute labor shortages may be experienced by mid-summer and 59 cities where such shortages may be expected after six months. The commission announced on February 18 that the order will not apply to establishments with 8 or fewer workers or to employers whose compliance would not effect a saving of manpower."

In concluding its discussion of the 48-hour work week, *The Survey* states that, "It was, of course, immediately apparent that one effect of the order would be to place employers under legal compulsion to pay overtime wage rates, thus increasing actual wage payments, raising costs of production and probably necessitating the renegotiation of numerous Government contracts. Fears were expressed in some quarters that a general application of the new policy would be ruinous to employers in some branches of business unless accompanied by corresponding increases in price ceilings."

To Handle Paper Conservation

The Waldorf Paper Products Company of St. Paul, and the B. F. Nelson Company of Minneapolis, have appointed the Olian Advertising Company to handle a paper conservation campaign in the Twin City area.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1943		Corresponding Weeks—1942	
February 6	87.4	February 7	103.7
February 13	88.6	February 14	103.4
February 20	88.3	February 21	103.8
February 27	90.9	February 28	104.5
March 6	89.5	March 7	102.7
March 13	*89.8*	March 14	101.9

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1942	104.5	103.9	102.9	100.4	95.3	87.4	75.8
1943	87.5	88.6	....	....	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1942	80.8	82.8	90.6	86.9	80.1	90.4
1943	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1936	1937	1938	1939	1940	1941	1942	1943
Year to Date..	76.7	89.2	66.4	78.9	86.6	88.1	103.8	*88.4*
Year Average.	80.4	79.8	71.5	83.4	85.6	97.4	90.4	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	*88*	..	..	..	..	..	..	..	..	..	..	..

Week ending Feb. 6, 1943—89 | Week ending Feb. 27, 1943—94
Week ending Feb. 13, 1943—87 | Week ending Mar. 6, 1943—93
Week ending Feb. 20, 1943—91 | Week ending Mar. 13, 1943—*93*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

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4. It should have a trained manufacturing organization guided by alert control chemists and engineers so that the products will always be of uniform high standard.

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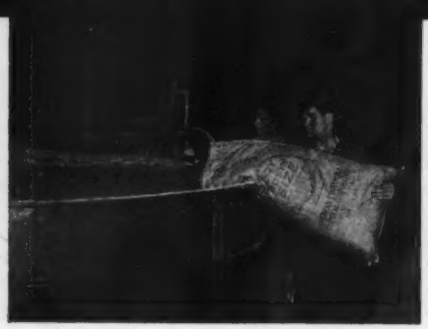

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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY

Edited by R. G. Macdonald, Secretary

Salvage and Conservation of Materials*

By A. Boyd Zook [1]

The Salvage Division's Industry and Government

Our task is a critical one and depends in large measure upon the cooperation of industrial leaders and executives. It is to them that we present our salvage program and it is upon them that we count for execution of this program in their respective companies.

Perhaps you manufacturers and fabricators who are playing such an important part and making such great contributions to the war effort wonder why a program to move scrap and secondary materials warrants your attention. The answer lies in the fact that American production cannot work to win unless critical waste materials of all kinds are quickly collected and returned to mills and furnaces for ultimate conversion into armament. It is well known that the waste materials of one plant are the raw materials for another. Therefore, if we are to wage a war on waste and get in the scrap—we must get in *all* the scrap and get it in quickly.

If some modern alchemist could discover a way to increase by one third our existing supplies of steel, copper, aluminum, tin, lead and other vital war materials—and do it overnight—his discovery would be hailed throughout the world as the greatest of the age.

Yet scrap metal, gathered in quantity, properly segregated, and properly used, will add that badly needed third to our metal stores. It will, in my opinion, provide the margin of victory, the added "push" we must have to set the Axis powers back on their heels.

Waste is typical of the United States. Having plenty of new material we never have considered what we discard as of any importance. Scrap metal, in the average plant, has been something to dispose of as quickly as possible so as not to interfere with operations. It may have some little value, but that hasn't been important. Obsolete equipment, in the average factory, has been something to store in an unused shed or a vacant yard to gather rust. The same is true of our homes and our farms. The old automobile and the broken vacuum cleaner have been just as useless, in our eyes, as moldy bread or spoiled fruit.

Industrial Salvage

The Industrial Salvage Branch is under the War Production Board and is charged with responsibility of developing salvage programs for waste materials, including iron and steel scrap, nonferrous metals, rubber, manila rope, burlap, and commercial solvents wherever they can be found throughout industry. The Industrial Salvage Branch is responsible for expediting a larger, faster flow of production scrap back into the bloodstream of production and obtaining the maximum amount of dormant scrap from all industrial companies in the United States.

Dormant scrap is defined as "obsolete machinery, tools, equipment, dies, jigs, fixtures, etc., which are incapable of current or future use in the *war production effort* because they are broken, worn out, irreparable, dismantled, or in need of unavailable parts necessary to practical re-employment."

Regular field men of the Industrial Salvage Branch or temporary volunteer assistants will call upon the presidents or other principal executive of every industrial company in order:

1. To help, in doubtful cases, in the prompt identification of dormant scrap items.
2. To assist in facilitating the disposition of dormant scrap by using all available and pertinent plant manpower.
3. To obtain report of approximate dormant scrap tonnages moved within any 30-day period.

All salvage programs of the Industrial Salvage Branch are designed to acquire first salvagable items of least importance and easiest to obtain; and, second, gradually drop the floor under those items which may be more important and more difficult to obtain.

To obtain the enormous tonnages of scrap materials so vitally needed is a complicated problem dependent for solution upon specific plans and methods. For that reason under the War Production Board there are four salvage branches.

The Special Projects Branch is organized to locate and dispose of accumulations of scrap which are involved in technical, legal, or financial problems. Working through a subsidy arrangement with Metals Reserve Corporation and War Materials, Inc., subsidiaries of the R.F.C., this branch is able to obtain, with comparative rapidity, scrap available from abandoned street railway tracks, unused railroad spurs, abandoned bridges, and abandoned buildings.

The General Salvage Branch is obtaining scrap materials of all kinds from households, farms, retail establishments, institutions, and municipal Governments. Their basic organization is a state chairman and an executive secretary in each state, responsible for establishing county organizations and incorporating other volunteer groups in the drive to obtain maximum scrap from the general public.

The Scrap Processors Branch has been able to

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Senior Industrial Specialist, Industrial Salvage Branch, Salvage Division, War Production Board, 122 E. 42nd St., New York, N. Y.

establish a 100% turn-over each 60 days of all obsolete cars in the 18,590 auto-scrap dealers yards. This branch regulates and supervises the scrap dealers which are licensed by the Government and are required to render a monthly report (Form PD 151) of their purchases, sales, and inventory.

The Industrial Salvage Branch is conducting an intensive campaign on the basis of voluntary cooperation with industry—with every industry, every unit of every industry, and with executives of every unit of industry. We have no new plans or formulas to bring you. We know that profitable salvage operations have been in effect in many plants and for many years. In 1932, we put on waste campaigns to save *money* in order to remain in business. Today, we put on a waste crusade to save *materials* so that we can remain in business.

Since time is too short to create new scrap collection channels, I want to stress that it will have to be done through existing channels; this covers the mill, the foundry, the broker, and goes down to the small scrap collector. Then, too, industry has established these channels over many years of experience and we do not want to disturb them. The Industrial Salvage Branch will not collect or buy any of these materials. We have no control over scrap prices nor have we anything to do with the allocation of scrap materials.

Utilization of Salvaged Materials

The Secretary of War and the Secretary of the Navy have issued orders that this job of scrap and salvage be done in all Government shipyards, arsenals, proving grounds, and military cantonments which come under their jurisdiction.

In Washington we found in the Library of Congress steel shelving not being used, we had it scrapped and it totaled 150 tons.

The U. S. Army is currently using 800 substitutes in several war materials. Satisfactory substitutions have been found for bronze finishes previously needed in 174 products used by the Army; the use of brass has been eliminated in 116 items: zinc has been eliminated from 93 specifications; nickel from 78 items; copper from 66; bronze from 68; aluminum from 58. In many types of equipment substitutes have been found for cork, chromium, cadmium, nickel, steel, and rubber.

Let me give you some figures in respect to the amount of iron and steel scrap used in the manufacture of military equipment. For example, 1000 pounds of scrap goes into a 75-mm. field-gun; 50 pounds go into a 50-cal. machine gun; 35,000 pounds go into a medium tank; 9000 tons go into a 35,000-ton battleship and 500 pounds go into a 2000-pound aerial bomb.

In respect to copper for military requirements, there are more than three miles of copper wire in a bomber, of which 2/10 of a mile represents copper derived from copper scrap. More than 400 miles of copper wire in a battleship, of which 32 miles are provided by scrap copper.

One third of the rubber currently used in armament is based upon scrap rubber. On that basis, a medium tank needs about 500 pounds of scrap rubber. A small pontoon bridge needs about 1000 pounds. Into every Army raincoat goes about ¾ of a pound of scrap rubber, and about 200 pounds of rubber used in a 2½-ton Army truck is scrap.

The Industrial Salvage Branch is only in a position to act as advisor and consultant and a stimulant to industry. Aside from such advice and counsel, business must do the work—for us, for itself, and for our country.

Scrap that is recognized as such, is only a small part of the actual scrap in the average plant, even if you add it to the recognized obsolete machinery and equipment which might also be broken up and returned for the furnaces. Actually, all of the materials in a plant, fabricated or not, are scrap if they are not providing a useful service in an efficient manner. And this includes the products you have made in the past as well as the materials you have used to make them. Thus, some of the scrap is evident as you look around. But a very large portion of it is not—and it is this portion that we have in mind when we talk about a real job of house cleaning.

Look into your products and you will find old designs which have long ago been superseded but held on your records just in case you get a rare order for one.

Trace the pipelines in your plant and you will find enough idle valves and fittings to meet your needs for a long time to come, granting that the plant has been in existence for an average period of time and that it has followed average practice. Take down what you do not need and scrap it. We must naturally impress industry to keep certain waste materials separated and clean—in other words, practice proper segregation of metals and materials. This also enables the speed-up usage of these materials. We realize that every business presents a different problem.

Production and production alone will win this war. There is but one job—to produce. The raw materials for production must partly come from scrap. In 1942, 86 million tons were produced, of which 26 million tons were scrap (from outside the steel mills). In 1943 94½ million tons will require a corresponding tonnage of scrap. More pig iron will be produced during 1943 than last year, and on account of more home scrap (within the steel mills) will be produced, all of which means less purchased scrap. Scrap from sources such as home and automobile graveyards may eventually dry up; this means that industry must produce the large percentage of scrap.

It is necessary to have scrap iron and steel to operate our open-hearth steel furnaces. To make two tons of steel, approximately one ton of iron and steel scrap is used. By adding this proportion of scrap to the furnace charge, steel is produced more quickly and more economically.

In other words, about one half of steel ingot production is iron and steel scrap. And, insofar as aluminum ingot is concerned, one fifth is clean aluminum scrap. Moreover, for every 100 pounds of copper consumed in the United States in 1942, 8 pounds was provided by copper scrap.

Steel is the life-blood of our armament program, and victory calls for every ton, every pound, and every ounce of iron and steel scrap to give America this most important of all historical victories.

Rubber: in 1942—800,000 tons were required for war needs.

Donald Nelson stated that "the war production program now is limited only by the supply of raw materials—and scrap is one of the most important parts of that raw material supply. Thus, it is clear that the only way we can meet this problem is to collect every last bit of scrap. None of us can afford to relax. We must all redouble our efforts for the long

pull, realizing that the industrial salvage program is not a one-week or one-month campaign anymore than this is a one-week and one-month war." "The various regulations affecting business activity now in force and to be adopted in the future by the War Production Board have been framed by "reasonable men" with no other end in view than winning the war," Donald Nelson, W.P.B. Chief, recently asserted.

"Remember," Mr. Nelson declared, "we are fighting an enemy who does not for one second care what happens to his own business people, to his own industrialists, labor, or indeed to any single right or privilege which any of his people may have been lucky enough to retain. We are going to beat him, but we can't do it without stripping for action.

"We have already done some drastic things to our economy. We have done these things because we had to do them in order to win the war, and we shall undoubtedly do a good many more equally drastic things, for the same reason, in the near future.

"But there is one thing I would like to emphasize as earnestly and sincerely as I possibly can. We are doing these things because we have to do them to win the war, and for no other reason. Every man may be fully confident that these restrictions and limitations will not be capricious. They will be drawn up and applied by reasonable men who, while this war lasts, have room in their hearts for just one antagonism—an eternal and everlasting antagonism to Hitler and his gang and everything they stand for."

The cycle of scrap in normal times is one of raw materials being fabricated into some particular product, such as, an automobile, refrigerator, stove, radio, or what have you. All products have an average life. For instance, an automobile, say eight years, and it is back to the junk heap, finally reaching again the mills and refineries, being fabricated into raw materials, from there back to a finished product again. But, now that we are in war, that cycle does not exist. I want to call your attention to the number of ships sunk by enemy submarines off the Atlantic Coast, in the majority of cases in sight of land. Sinkings from January 14 to July 1 last year show, on figures released by the U. S. Navy, that over 337 ships were sunk by enemy submarines in our waters. This means that on the bottom of the Atlantic Ocean lie hundreds of thousands of tons of materials, which, in normal times, would eventually be scrapped and get back to the mills and refineries, but, it is now unrecoverable, the same as tanks which are being destroyed out in foreign lands, and millions of pounds of materials in the form of ammunition which are being blown out in the air, never to be recovered. Therefore, the scrap problem becomes more serious as the war progresses.

In conclusion. The speed with which we win this war is in almost direct proportion to our ability to produce the war armament upon which our Victory depends—and one half of war armament is produced from secondary, waste, or scrap materials.

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Aladino J. Amaro, director Institute of Technology, Montevideo, Uruguay, a 1921 graduate of the Facultad de Ingenieria, Montevideo.

Robert M. Bergstein, vice president and general manager, The Interstate Folding Box Company, Middletown, Ohio.

Roger J. Clapp, salesman, Linton Brothers & Co., Fitchburg, Mass., formerly with the Dennison Manufacturing Co., Framingham, Mass.

A. B. Crowell, Jr., partner, Union Paste Company, Hyde Park, Mass., a 1928 graduate of the University of Wisconsin.

A. C. Embshoff, manager industrial division, Infilco, Inc., 325 W. 25th Place, Chicago, Ill., a 1916 graduate of Purdue University.

Winfred H. Graebner, chief chemist, Converting Division, Marathon Paper Mills Co., Menasha, Wis., attended Lawrence College.

John C. Hamilton, chemical engineer, Canadian International Paper Company, Ltd., Three Rivers, P. Q., Canada, a 1942 graduate of Queen's University.

Jay C. Harris research chemist, Monsanto Chemical Co., Dayton, Ohio, a 1930 graduate of Washington State College, and formerly with the Colgate-Palmolive-Peet Co., Jersey City, N. J.

Amor Hollingsworth, Jr., president, Tileston & Hollingsworth Company, Boston, Mass., a 1931 graduate of Harvard.

John R. Hubbard, manager of production, Peter Cooper Corporations, Towanda, N. Y., a 1929 graduate of Tufts College.

George B. Hughey, head of experimental plant and research department, West Virginia Pulp and Paper Company, Covington, Va., a 1936 graduate of Alabama Polytechnic Institute, with a B.S. in Ch.E., and an M.S. from Ohio State University in 1938, and a Ph.D. in 1941.

Joseph F. Keyes, assistant chief chemist, North Carolina Pulp Company, Plymouth, N. C., a 1928 graduate of the University of Maine, and formerly with the Cherry River Paper Company, Richwood, W. Va.

George J. Lincoln, Jr., executive secretary of trade associations, 1532 Lincoln-Liberty Building, Philadelphia, Pa.

Lester T. Oyler, technical assistant in paper mill, West Virginia Pulp and Paper Company, Covington, Va., a 1941 graduate of Ohio State University.

Lloyd A. Parent, assistant chemist, Port Royal Pulp and Paper Company, Fairville, N. B., attended University of New Brunswick.

Roland W. Sawyer, chemist, Hollingsworth & Vose Company, West Groton, Mass., a 1926 graduate of Massachusetts State College.

Martin M. Scher, student, University of Maine, Orono, Maine.

J. H. Smart, mill chemist, Nekoosa-Edwards Paper Company, Port Edwards, Wis., a 1936 graduate of the University of Wisconsin.

Charles A. Upson, president, The Upson Company, Lockport, N. Y., a 1900 graduate of the Unisity of Pennsylvania.

J. Alex Wilson, vice president, Beckwith-Chandler Company, Delancey and Rutherford streets, Newark, N. J., a 1905 graduate of Virginia Polytechnic Institute.

Paul H. Yoder, eastern manager, Pyroxylin Products, Inc., 60 East 42nd street, New York, N. Y., a 1932 graduate of Franklin and Marshall College.

A member is interested in purchasing the TAPPI Bibliography of Paper Making 1928-1935, 1936 and 1939. Anyone having any of these three volumes should write to R. G. Macdonald, 122 East 42nd street, New York, N. Y.

Features of Adjustable-Speed Electric Drives to Meet the Requirements of the Paper Industry*

By R. R. Baker[1]

Abstract

In forming and processing paper there are numerous operations which require adjustable-speed drives. Such drives are required to meet certain operational requirements, among which are included: operating speed range, speed regulation, methods of operation, and required capacities. There are available a number of electric drives which are suitable for adjustable-speed operation. Each type has certain features and limitations. A careful study of the particular machine requirements and the features of the available drives will permit selection of the type which best meets the application requirements.

In the manufacture of pulp, paper, and paperboard, although the major portion of the mill load is made up of constant-speed drives, there are many drives which require speed adjustment. Drives of this type are required on practically all of the paper-forming and paper-processing equipment as well as on certain of the auxiliaries. Operations requiring these drives may be classified as follows:

For Paper Forming:
- (a) Individual sections or lineshaft drives of paper and board forming machines.
- (b) Core type reels.

For Paper Processing:
- (a) Individual section or lineshaft drives of coating, waxing, pasting, roofing, saturating, and other similar processing equipment.
- (b) Supercalenders
- (c) Winders, rewinders, and slitters
- (d) Rotary cutters.

Auxiliaries:
- (a) Wire shakes
- (b) Rotary screen filters
- (c) Feed conveyors.

In each case the adjustable speed drive should provide the control features required by the applica-

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Industrial Engineer, Westinghouse Electric and Manufacturing Company, Pittsburgh, Pa.

TABLE I.—OPERATING REQUIREMENTS OF PAPER MILL APPLICATIONS

Applications	Capacity, hp.	Productive Speed Range	Threading Speed	Speed Regulation	Mult. or Single Motor	Control Features: Individual	Control Features: Group
PAPER OR BOARD FORMING							
(a) Sectional Drive	5-500	2/1 to 10/1	No	Prod. Speed ± 1%	Multiple	Start-Stop Brake Inch Speed-Matching	Start-Stop Preset-Speed
(b) Lineshaft Drive	50-1000	2/1 to 10/1	No	Prod. Speed ± 1%	Single	Start-Stop Present-Speed	None
COATING—WAXING—PASTING—ROOFING—IMPREGNATING							
(a) Sectional Drive	5-25	2/1 to 4/1	Yes 1/10 Max.	Prod. Speed ± 5%	Multiple	Start-Stop Brake Inch Speed-Matching	Start-Stop Speed-Adj. Thread
(b) Lineshaft Drive	25-100	2/1 to 4/1	Yes 1/10 Max.	Prod. Speed ± 5%	Single	Start-Stop Speed Adj. Threading	None
SUPERCALENDER							
	50-500	2/1 to 3/1	Yes 1/20-1/40 Max.	Prod. Speed ± 5% Thread Spd. ± 2%	Single	Start-Stop Threading Uniform-Torque Brake Preset-Speed	None
WINDER—REWINDER—SLITTER							
	10-250	3/1 to 4/1	Yes 1/20-1/40 Max.	Prod. & Thread ± 5%	Single or Mult.	Start-Stop Threading Uniform-Torque Brake Preset Speed	Same as Individual
ROTARY CUTTER AND LAYBOY							
	3-25	4/1	Yes 1/20 Max.	Prod. & Thread ± 5%	Single	Start-Stop Uniform-Torque Threading Speed Adj.	None
WIRE SHAKE							
	3-15	4/1	No	Manual Adj. for Speed Comp.	Single	Start-Stop Speed Adj.	None
ROTARY SCREEN FILTER							
	3-15	2/1 to 4/1	No	Manual Adj. for Speed Comp.	Single	Start-Stop Speed Adj.	None
FEED CONVEYOR							
	1-50	2/1 to 4/1	No	Manual Adj. for Speed Comp.	Single	Start-Stop Speed Adj.	None

tion. The points which must be given consideration in selecting such a drive include:

(a) Operating speed range required.
(b) Permissible speed variations at productive and threading speed.
(c) Type of control operation—manual or magnetic.
(d) Are preset speed adjustments required?
(e) Permissible torque variations during acceleration to productive speed.
(f) Is rapid acceleration or deceleration required?
(g) Which of the operational features start-stop-thread-inch, etc. are required?

General Requirements of Adjustable Speed Drive

In most of the paper mill applications requiring adjustable speed, it is necessary to maintain reasonably good speed regulation at all speeds within the productive speed range. This is particularly true of all of the paper-forming operations, where any variation in operating speed materially affects the characteristics of the sheet being formed. Furthermore, where the individual sections of a paper-forming or processing machine are motor driven, it is not only necessary to maintain close "overall" speed regulation, but it is also necessary to match the speed of the adjacent sections with a high degree of accuracy. On the other hand with paper-processing operations the speed requirements are not as critical as with paper forming operations. In these cases, as the sheet has already been formed, slight variations in operating speed may be tolerated. Similar variations in operating speed are also permissible with the auxiliaries which require speed adjustment, such as wire shakes, rotary screen filters, feed conveyors, etc. With the drives for such machines it is possible to make manual adjustments from time to time to compensate for variations in the operating conditions.

Table I lists the operating requirements of a number of adjustable-speed applications in the industry.

Available Types of Adjustable-Speed Electric Drives

There are available a number of types of electric drive, including both alternating and direct current motors, which are suitable for adjustable-speed operation. These types include:

(a) The a.c. wound rotor induction motor.
(b) The constant voltage shunt wound d.c. motor.
(c) The adjustable voltage d.c. system including both separately excited shunt wound d.c. motor and generator.
(d) The d.c. series variable voltage system employing a series wound d.c. motor operated in conjunction with a series wound d.c. generator.
(e) A recently developed system utilizing an electronic power rectifier and controller in conjunction with a shunt wound adjustable speed d.c. motor.

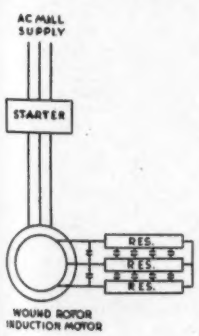

Fig. 1

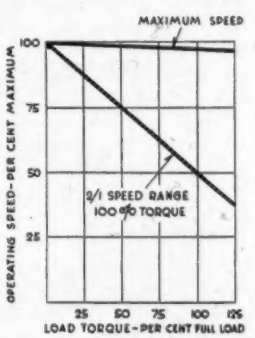

Fig. 2

Fig. 1—Diagram Wound Rotor Induction Motor. Fig. 2—Speed-Torque Characteristics Wound Rotor Induction Motor.

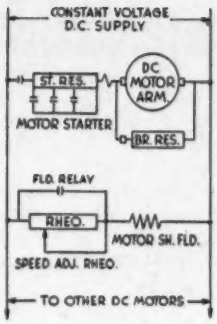

Fig. 3

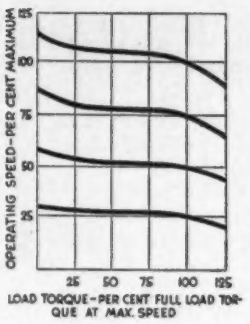

Fig. 4

Fig. 3—Diagram Constant Voltage Shunt Wound D. C. Motor. Fig. 4—Speed-Torque Characteristics Constant Voltage Shunt Wound D. C. Motor.

Although each of these types permit of speed adjustment, each has certain features as well as certain limitations which apply to the particular type only. To insure obtaining the maximum production of a uniform and a high quality product from the adjustable speed drive, the application engineer must carefully consider the requirements of the drive and then select the type which best meets these requirements.

Fundamentally the d.c. motor is the most suitable for adjustable-speed operation. It is recognized, however, that in most mills, as the primary power supply is obtained from a.c. generators, it is necessary to provide conversion equipment to obtain a suitable power supply for the d.c. motor. In certain cases, the lower first cost of the wound rotor induction motor drive when compared with that of the d.c. drive will justify the installation of the a.c. equipment. The d.c. drive provides closer speed regulation over wider operating speed ranges and is therefore more suitable where a wide operating range and close speed regulation are important. Where the control functions are of a complicated nature or are to be performed automatically the d.c. drive is preferred due to the simplicity of its control and speed regulating circuits.

In selecting either a.c. or d.c. motors for adjustable speed operation, due consideration must be given to the torque capacity of the motor at reduced operating speeds. All self-ventilated motors depend upon the fan action from their rotors to provide sufficient air circulation to carry away the heat resulting from the motor losses. The ability of the motor to dissipate heat is materially reduced at the lower speeds due to the reduced air circulation at these speeds. This reduction in heat radiating capacity does not apply to forced ventilated motors, as the air circulation is independent of the operating speed.

The operating characteristics of each type of adjustable-speed drive referred to are given below.

Wound Rotor Induction Motor

This drive consists of a wound rotor induction motor with primary control of either manual or magnetic type and with secondary resistance control either

manually or motor operated as shown on diagram Fig. 1. Power for the motor is obtained directly from the a.c. power supply.

The usual control functions of starting and stopping are obtained on the primary control switch which is interlocked with the secondary control so that the equipment can be started only when the secondary control is in the resistance "all in" or starting position. Both acceleration of the drive and operating speed adjustments are under control of the secondary circuit resistance. As there are a limited number of steps for acceleration and speed control, there is considerable torque variation between control points when accelerating or making speed adjustments.

On constant torque loads, which are ordinarily encountered in paper mills, the motor input remains constant over the operating speed range, and as a result the losses are high at reduced operating speeds. The drives may be arranged for rapid deceleration either by plugging or by disconnecting the primary circuit and applying d.c. to these windings or by applying mechanical braking.

Due to the "speed-load" characteristics of this type of drive, as shown on curves Fig. 2, it is limited to a 2 to 1 operating speed range. At top speed such a drive would have in the order of ½% speed variation between three-quarter and full load, and at one-half top speed, a variation of 12.5% for the same load change. In many applications the 12.5% speed variation could not be tolerated.

This type of drive is suitable for application to small winders with moderate top productive speeds, to some waxing, pasting, and coating machine lineshafts requiring only a limited operating speed range. The drive is available in all capacities as required by the industry.

Constant Voltage Shunt Wound D.C. Motor Arranged for Adjustable Speed by Shunt Field Control

This drive consists of a d.c. motor with main circuit control and speed adjusting shunt field rheostat as shown in diagram Fig. 3. The drive requires a d.c. power supply, and as the speed adjustments are independent of the bus voltage, the same power supply may serve one or more drives up to the limit of the capacity of the power supplying d.c. generator.

The usual functions of starting and stopping are

Fig. 5

Group of Rotary Cutters Driven by D. C. Motors—Power Supplied from Constant Voltage D. C. Mill Bus—Operating Speed Range Obtained by Motor Shunt Field Control.

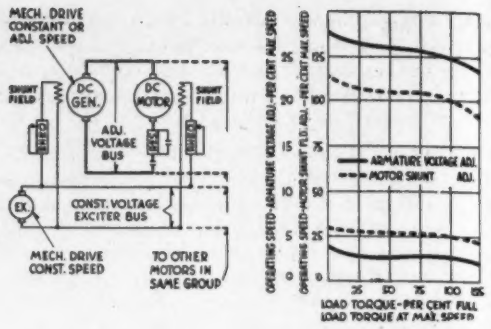

Fig. 6 Fig. 7

Fig. 6—Diagram Adjustable Voltage System. Fig. 7—Speed-Load Characteristics Adjustable Voltage D. C. System.

obtained by control of the armature circuit. The motor is provided with suitable starting resistance to limit and control the torque developed during acceleration. The control may be either full magnetic or manually operated. When magnetic equipment is specified it may be arranged for automatic operation from a pilot switch or for manual operation from a pushbutton station. The speed adjustments are obtained by a rheostat in the motor shunt field circuit. This rheostat may be either manual or motor operated.

A motor operated rheostat is specified when full automatic control is required.

The control is ordinarily interlocked so that it provides full motor excitation on starting and thus limits the starting current to a minimum value. With this drive rapid deceleration can be obtained by dynamic braking. In applying dynamic braking, the motor armature is disconnected from the power supply bus and is shorted on itself through suitable dynamic braking resistor by means of a contactor provided for this purpose.

Due to certain fundamental limitations, motors of this type are limited to approximately 4 to 1 speed range by shunt field control. They are capable of developing approximately constant horsepower over the operating speed range. The motor capacity is somewhat reduced over the lower portion of the speed range due to increased shunt field losses and to reduced ventilation. The "speed-load" characteristics of this motor are very good over the operating range, being in the order of perhaps 2-4% speed variation between three-quarter and full load. The speed-load characteristics are shown on curves Fig. 4.

With this type of motor, where speeds below the operating range are required for threading purposes, the control can be modified to obtain a further speed reduction by utilizing a portion of the starting resistance for speed control. When operated in this manner, the "speed-load" characteristics are adversely affected and speed variations with load changes become of the same order of magnitude as with the wound rotor induction motor.

The operating efficiency of such a drive is very good over the entire speed range obtained by shunt field control. On a constant torque application the motor losses decrease with reduced operating speed, and therefore the operating efficiency at these reduced speeds is much higher than can be obtained with the wound rotor induction motor drive.

This type of drive is available in all capacities as required by the industry and is suitable for applica-

tion to rotary cutters, rewinders with moderate top productive speed limits, and to lineshaft driven processing machines such as waxing, pasting, and coating. A typical installation of this type of drive is illustrated in Fig. 5.

Adjustable Voltage D.C. System

The adjustable voltage d.c. system, which is essentially as shown in diagram Fig. 6, consists of a shunt wound separately excited d.c. motor, a shunt wound separately excited d.c. generator, the necessary control for both the armature and field circuits of these units, and an exciter for supplying excitation to the motor, generator, and control.

Speed adjustments are obtained by a combination

Fig. 8

Sectional Paper Machine Drive—Power Supplied by Synchronous Motor Generator set—Motors Operated over Speed Range by Voltage Control—Carbon Pile Regulators in Motor Shunt Fields Provide for Accurate Speed Matching Between Sections.

of generator voltage and motor shunt field control. With this system extremely wide speed ranges are possible with reasonably good speed regulation over the range. For example, if the motor is operated over a 4 to 1 speed range by shunt field control and the generator over a 10 to 1 voltage range, the combination provides a total speed range of 40 to 1 (Fig. 7). A speed range of this magnitude represents the maximum requirements of the industry.

In selecting equipment for operation over a speed

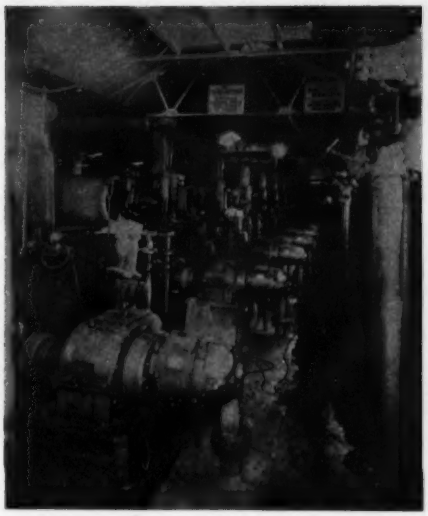

Fig. 9

Wet End Auxiliary Drive—D. C. Power Supplied from Lineshaft Driven Synchronizing Generator—Motors Operated over Speed Range by Armature Voltage Control—Load Adjustments by Individual Rheostats in Motor Shunt Field Circuits.

range by a combination of armature voltage and shunt field control, it is necessary to take into consideration the reduced ventilating capacity of the motor at reduced speeds in order to make a proper subdivision of the speed range. By virtue of the fact that the d.c. motor when operated over a speed range by shunt field control is capable of developing substantially constant horsepower, the total speed range may be subdivided between armature voltage and shunt field control so as to provide adequate torque capacity at the minimum speed.

With this adjustable speed system the d.c. generator may be driven at a constant speed, forming part of a motor generator set as with the conventional sectional paper machine or single motor paper machine lineshaft drive, or it may be driven over an operating speed range by some part of the processing machine and serve as a synchronizing generator as for example with the wet end auxiliary or the core type reel drive.

The generator may be selected to serve more than

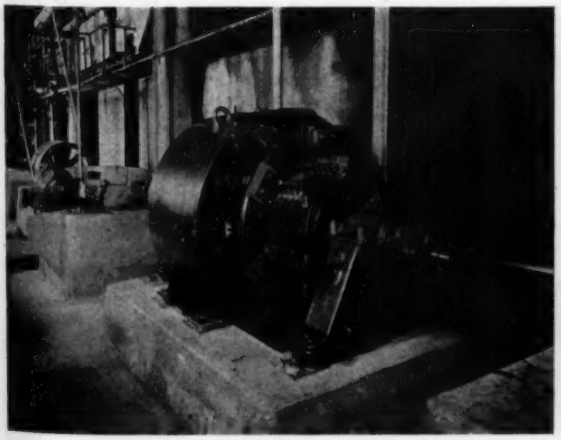

Fig. 10

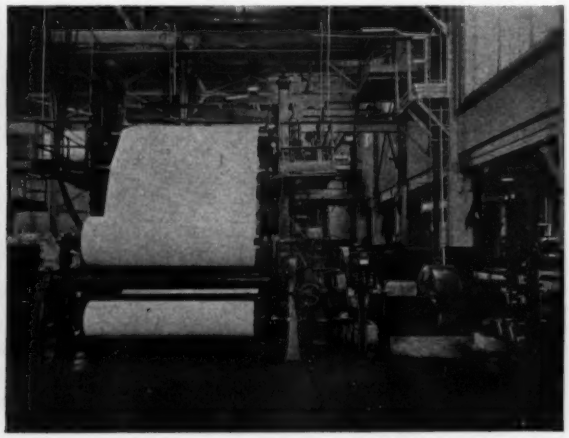

Fig. 11

Fig. 10—D. C. Single Motor Drive for Paper Machine Lineshaft—Speed Range by Combination Armature Voltage and Motor Shunt Field Control—Accurate Speed Regulation Maintained with Electronic Speed Regulator. Fig. 11—Supercalender with D. C. Motor Drive and Rototrol Threading Speed Regulator—Wide Speed Range by Armature Voltage Control.

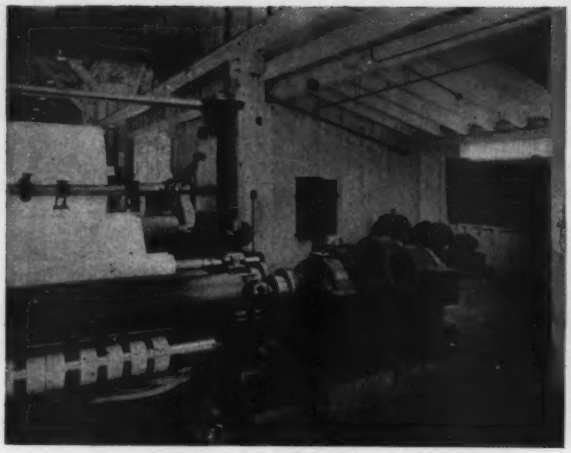

FIG. 12

FIG. 13

FIG. 12—Winder with Multiple Motor Adjustable Voltage D. C. Drive.—Wide Speed Range, Accurate Threading Speed, and Uniform Torque During Acceleration Are Features of This Drive. FIG. 13—Beloit Core Type Reel with D. C. Motor Drive—Synchronizing Generator Driven from Lineshaft Provides for Speed Range by Armature Voltage Control—Rototrol Tension Regulator Adjusts Motor Field Excitation to Compensate for Changes in Roll Diameter.

one motor provided all motors are required to operate over a similar speed range. This arrangement is used with the various forms of sectional drives for paper forming or processing machines. When operated in this manner each individual motor may be adjusted independently by either automatic or manual control of its shunt field excitation. On sectional paper machine drives accurate speed matching between the adjacent sections is thus obtained by the use of fully automatic differential speed regulators controlling the shunt field excitation of the individual section motors.

The control for this system provides starting, stopping, inching, and dynamic or regenerative braking by switching operations in the armature circuits. The control also provides for speed adjustment by control of the generator and motor excitation. Where special operating characteristics are required of the motor, they may also be obtained by control of the motor excitation.

The switching may be arranged for either magnetic or manual operation, and the rheostat provided for speed adjustments may be motor or manually operated. The simplicity of the control circuits required with this type of drive makes it possible to obtain full automatic operation of the most complicated control sequences.

Where speed regulation is of major importance, as on all paper or board forming machines, or where it is necessary to maintain a very uniform threading speed, as for example on high speed supercalenders, where the range between maximum productive speed and threading speed may be as high as 40 to 1, it is possible to supplement these drives with speed regulating equipment of various types. The Rototrol, a simplified and reliable regulator utilizing standard exciter construction, is well adapted to this service. The features of this device were recently described in an article by W. R. Harris, "Rototrol Provides Operating Advantages in the Pulp and Paper Industry," which appeared in the November 26, 1942 issue of the PAPER TRADE JOURNAL. The Rototrol has been applied to drives for paper machines, supercalenders, wet end auxiliaries, and to core type reels,

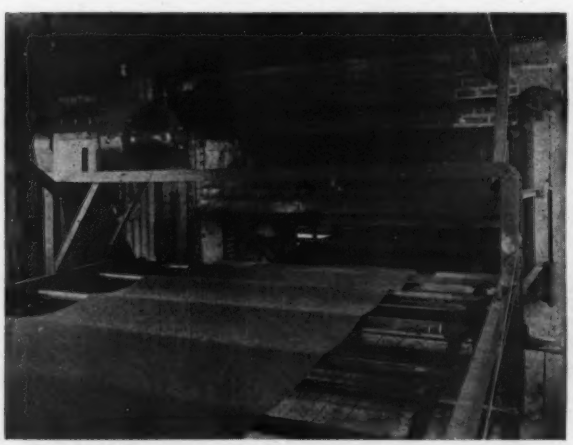

FIG. 14

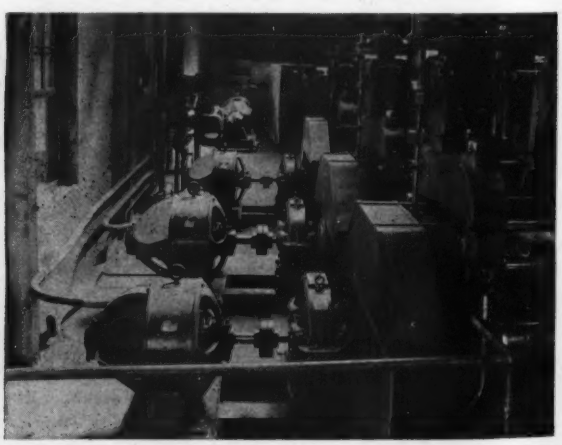

FIG. 15

FIG. 14—Individual D. C. Motor Drive on One of Five Sections of a Saturating and Coating Machine—Operating Range of 5 to 1 Is Obtained by Voltage Control—Power Is Supplied by Synchronous Motor Generator Set. FIG. 15—Board Calenders Operated in Tandem—Three Stacks and Belt Conveyor Driven by Individual D. C. Motors—Adjustment of Individual Motors by Shunt Field Rheostats—Speed Range of Group by Voltage Control of Power Supplying Generator.

where in every instance it is performing with a high degree of success.

The adjustable voltage direct current drive with its many possible modifications is suitable for application to the individual sections of paper forming or processing machines or to the lineshaft drives of these machines, to high speed winders, to supercalenders, and to core type reels. This type of drive is available in all capacities as required by the industry. Figs. 8 to 15 illustrate typical installations of this type of drive.

D.C. Series Variable Voltage System

For years an effort has been made to eliminate the exciter from the adjustable voltage d.c. drive, particularly on equipments of small capacity where the cost of the exciter represents an appreciable part of the total. This has been accomplished with the recently developed d.c. series adjustable voltage drive. With this drive the exciter is eliminated by using a series-wound d.c. motor and generator and operating the control from the a.c. circuit.

This drive, shown in diagram Fig. 16, consists of a series wound d.c. motor, an induction motor generator set having a series wound d.c. generator, and the necessary control. In its simplest form the control includes only the magnetic linestarter for the induction motor of the set with a start-stop pushbutton station and the speed adjusting rheostat which is connected in shunt with the generator series field. The combination of a rising generator voltage and an increased motor excitation with increased load results in a fairly uniform speed of the motor between one-quarter and full load. Speed adjustments are made by shunting various portions of the load current from the generator series field, thus permitting the generator to operate over a wide voltage range at any given load current. The series characteristics of the motor and generator permit developing a high starting torque when the equipment is adjusted for any operating speed within its range. This feature is of particular advantage on certain applications such as conveyor drives where adequate starting torques may be developed without increasing the rated capacity of the equipment.

With the standard arrangement of control the d.c. generator and motor are permanently inter-connected, and the equipment is started and stopped by starting and stopping the motor generator set. On starting the equipment accelerates to a speed as determined by the setting of the speed adjusting rheostat. On stopping the motor of the motor generator set is disconnected from the power supply, and the equipment is allowed to drift to rest. If rapid deceleration is required the control may be modified to provide this feature by adding dynamic braking resistance and a main circuit and dynamic braking contact.

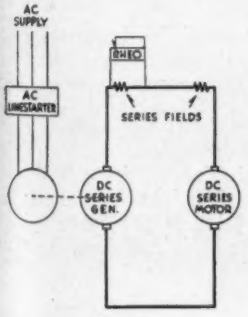

Fig. 16

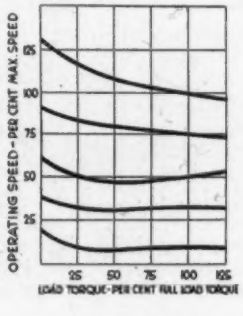

Fig. 17

Fig. 16—Diagram D. C. Series Variable Voltage. Fig. 17—Speed-Load Characteristics Series Variable Voltage D. C. Drive.

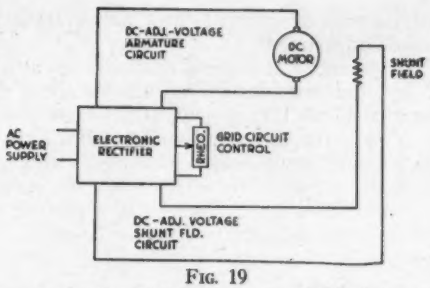

Fig. 19

Diagram D. C. Adjustable Voltage Drive with Electronic Rectifier.

In view of the fact that the generator voltage is dependent on the load current, this type of drive is not particularly suitable for multiple motor operation. The equipment is available in capacities up to 15 hp. and for an operating speed range of 10 to 1. The speed regulation, particularly from 25% to full load, as indicated by the curves Fig. 17, is fairly good and suitable for such applications as rotary cutters and paper processing drives such as waxing and coating machines. A typical installation is shown in Fig. 18.

D.C. Adjustable Voltage Drive Utilizing Electronic Power Rectifier

The d.c. adjustable voltage drive utilizing an electronic power rectifier is similar in principle to the adjustable voltage d.c. drive except that the motor generator set and exciter are replaced with electronic rectifiers. The equipment consists of the conventional shunt wound separately excited d.c. motor, auxiliary control, and the electronic rectifier which serves both as a power rectifier and as a motor controller. The arrangement is shown in diagram Fig. 19. With this drive speed and adjustments are obtained by a combination of armature voltage and motor shunt field control. The armature voltage adjustments are obtained by grid control of the electronic tubes supplying the power circuit and shunt field adjustments by similar control of the electronic tubes supplying the field circuit. The equipment may be arranged to provide start, stop speed adjustment and dynamic braking operations from pushbutton station. It is also

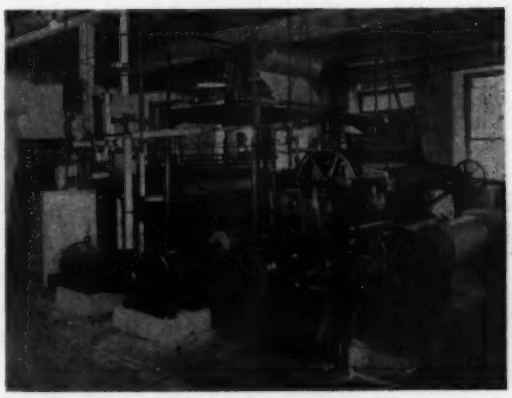

Fig. 18

Waxing Machine with 10 hp. D. C. Series Variable Voltage Drive—A Wide Operating Speed Range with Stable Operation at All Speeds Is Provided.

designed to provide current limit acceleration to a preset speed adjustment.

This equipment is at present available in capacities up to 5 hp. and provides for adjustable speed operation over a 20 to 1 range, with satisfactory speed regulation to meet the requirements of drives for paper processing equipment. Ordinarily this drive will be specified only where it is advantageous to eliminate the motor generator set as required with the conventional adjustable voltage d. c. drive.

In conclusion it may be stated that although the requirements of adjustable speed drive in the paper industry are numerous and varied, there is available among the many types of adjustable speed electric drives, one which ideally meets the requirements. A careful study by the application engineer of the particular machine requirements as well as the features of the available drives will permit selection of the most suitable motor drive for each application.

The Relation of Ink to Paper*

By Herbert J. Wolfe[1]

Abstract

For optimum printing results, the physical characteristics of the ink must be suitable for the paper being used. The physical properties of an ink that influence its printing properties most greatly are its viscosity, yield value, and thixotropy. These properties control the adhesion and cohesion of the ink and influence its behavior on the press and paper. The consistency of an ink should be as great as the paper to be printed, the speed of the press, and the size of the form will permit. An ink of too thin or fluid consistency for these factors may exhibit serious mottle and may even strike through the paper. An ink of too heavy consistency for these factors may pick or tear the paper.

Good printing papers should have a smooth, homogeneous surface capable of being easily wetted by ink. The caliper, formation, and density must be uniform to permit the printing plate to contact the paper evenly without excessive pressure.

A knowledge of the relationships between printing ink and paper is of the utmost importance to inkmaker, papermaker, and printer. The finest ink and the best grade of paper stock on the market may be run together with poor results if the two are not designed for each other. The subject of the relationships between ink and paper is not as difficult as is frequently supposed. Like most technical problems, it only appears difficult when viewed as a whole, but when the problem is broken down into its fundamentals it is quite easy to understand.

Ink Constituents and Properties

Printing ink is composed of an intimate mixture of pigments, extenders, varnishes, oils, and metallic driers, with the frequent addition of waxy or greasy compounds to shorten or modify the ink. The function of the pigment portion is to impart color or opacity to the ink. The function of the extender, other than to perhaps lower the cost of the ink, is to impart more solids or body to it to improve its working properties. The varnishes and oils serve as the vehicles for the pigments and extenders and impart the necessary fluidity to the ink. They bind the pigment particles to the printed surface and, through their ability to change from a fluid to a solid upon combining with the oxygen of the air, they serve to cause the ink to dry. Naturally, this applies only to inks that dry by oxidation. The metallic soaps of the drying metals such as lead, manganese, and cobalt, are added to catalyze or speed np the absorption of oxygen, and thus serve to cause the ink to dry faster so that the printed sheets may be handled within a reasonable length of time without causing the ink to smear. The waxy or greasy compounds are added to relieve the stickiness or tackiness of the ink to reduce offset and to improve its printing properties.

In any printing ink, the adhesion of the ink for the rollers, plates, and paper must be greater than the cohesional forces present in the ink, otherwise it will not distribute properly and will pile or "cake" on the rollers or plates of the press. In the printing operation, as the inked types or forms contact the paper and are withdrawn, the ink film is ruptured, part of it being transferred to the paper and part of it remaining with the types or forms. This rupture of the ink film does not consist of a direct, sharp break as might occur with the breaking of a solid material. Rather it consists of the ink film being pulled out into threads, or "necks" which break at their narrowest parts. In general, the more fluid the ink, the longer will be the "necking down" effect before the film ruptures. This "necking down" type of rupture is shown in greatly exaggerated form in Fig. 1.

The physical properties of an ink which influence its printing characteristics most greatly are its viscosity and its yield value. Thixotropy is also a factor. Viscosity is the measure of the internal friction of an ink caused by the rubbing of one particle over another and is measured by the resistance offered by the ink to flow after a certain definite force has been applied. In common terms it might be called the fluidity of the ink. Yield value is the force which must be applied to just cause an ink to flow. In thin inks the force of gravity is greater than the yield value and such inks will therefore level out or flow without the application of any additional force. This does not mean, however, that these inks have no yield value. Thixotropy may be thought of as a sort of

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

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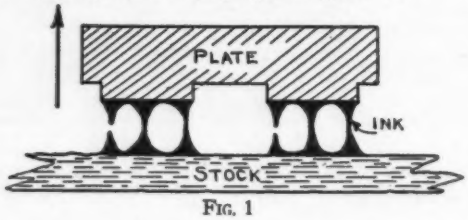

FIG. 1

"false body" which upon agitation of the ink is temporarily destroyed, but which reforms again when the agitation is discontinued. In other words, it is a reversible gel, believed to be caused by the electrical charges present on the pigment particles.

In the usual printing operation, the rotational force of the rapidly revolving rollers greatly exceeds the yield value of the ink and overcomes, temporarily, any thixotropy present. The ink therefore breaks down and becomes more fluid. This fluidity enables it to distribute readily and completely on the moving parts of the press. After the distributing rollers have applied the ink to the printing plate, there is a brief interval before contact with the paper is made, during which it may have an opportunity to again exercise some of its yield value. This tends to prevent the ink from running too freely, or mottling when it contacts the paper. Yield value and thixotropy, considered together, may be thought of as a brake on the fluidity of the ink. The necessity for a certain amount of shortness in the consistency of an ink may be illustrated graphically if one tries to print on a hard-surfaced, nonabsorbent paper stock with a straight heat-bodied oil containing just sufficient color to render the printing visible. Such a "varnish ink" will have practically no yield value and will be almost a pure viscous liquid. It will be found, in general, that the printing results will be uneven and badly mottled, as shown in Fig. 2. There is a double reason for this, first, the fluidity of the ink causes it to form relatively long "necks" during the printing operation, and the "necks" on dropping back on the printing result in uneven film thickness, or mottling; the second reason is that the ink will not stay "put" when it contacts the paper, but will tend to flow into the hollows of the paper surface, or into the more highly ink-receptive areas of the surface. In the phraseology of the pressroom, the ink will be said to "crawl." If, on the other hand, this type of "varnish ink" is used on a relatively absorbent stock, such as newsprint, the printing results will be quite good. Here part of the ink is absorbed into the surface of the paper before it has had an opportunity to mottle. Generally, the application of a light film of ink will also tend to prevent mottling, because there is then not enough ink to cause long "necks," and the small amount of ink applied is not sufficient to run. Uneven or nonhomogeneous coating on the paper will also cause mottling for obvious reasons.

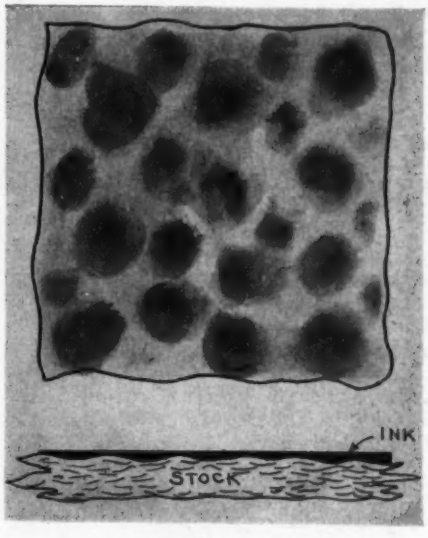

FIG. 2.

Ink and Paper

Another factor of the printing process, which is of particular importance in the printing of newsprint and other absorbent stocks is capillarity. It is mainly upon capillarity that the drying of news ink depends. When news ink, which consists essentially of pigment and mineral oil, is applied to the porous surface of paper, two systems capable of exerting capillarity are competing for the oil in the ink; first, the paper surface, whose minute interstices act as a multitude of capillary tubes, and, second, the pigment particles, with the small spaces between them forming the competing capillary system. At the instant of printing, pressure favors the capillary system in the paper. Continued penetration, however, depends upon the relative forces of the opposing capillary systems which is influenced by the coarseness of the paper fibers; the amount and kind of sizing; the size and shape of the pigment particles, and their concentration in the ink; and the fluidity of the ink as measured by its viscosity and yield value. To obtain a satisfactory printing job, a balance between all these factors must be attained. Too much penetration of the oil into the paper will leave the pigment particles without sufficient binder; while too little penetration will result in a wet, easily smeared ink film.

In general, the more absorbent the surface of the stock, the more fluid may be the ink for good printing results. The limiting factors here are the viscosity of the ink and the nonpicking qualities of the paper surface. If the ink is too thin or fluid it will not distribute evenly on the types or plate surfaces because of its low adhesion and cohesion which will result in poor printing. There is also the possibility that a thin ink will penetrate the paper to such an extent as to cause strike-through. If, on the other hand, the ink is too heavy and viscous for the stock being printed, it will tear the surface fibers or coating from the paper and cause rapid filling in of the types or forms due to the loose fibers or coating material picked up by the ink. For this reason the consistency of an ink must always be matched carefully to the stock it is to be used on.

As has been intimated, as the surface of the paper stock becomes harder and less absorbent, more and more yield value is required in the ink to give optimum printing results. An increase in viscosity is also necessary to provide proper distributing characteristics, because an ink of high yield value and low viscosity would be too short and butterlike to distribute well. All this leads up to the rule generally followed by the inkmaker which is *to make his inks of as high viscosity and yield value as is consistent with the paper to be printed and the speed of the press it is to be run on.* Obviously, a fast-moving press will require a thinner ink than a slow-moving press because of the time factor involved in the mathematical formula for viscosity. At high-press speeds the ink tends to exert a greater pull on the surface of the paper and this must be allowed for if picking and tearing are to be avoided. Large printing forms also require the use of less viscous inks than are required for small forms, due to the greater area from which the ink must be pulled by the paper.

Paper Properties

With the above generalizations in mind, we may now logically consider the characteristics of paper which influence its printing properties. Careful thought will indicate that the most important characteristics are: 1. Smoothness of surface. 2. Absorbency of the surface. 3. Ink-receptivity or ink-wettability of the surface. 4. Hardness or resistance to picking of the stock. 5. Evenness of formation and evenness of caliper of the stock. 6. Resilience of the stock.

These characteristics are governed, in turn, by the furnish used in making the pulp; the degree of refining given; the formation on the paper machine; the degree and type of sizing used; the amount of calendering given; the amount, kind, and hardness of the coating, if any, applied to the stock; and the moisture content of the finished stock. An alteration in any one of these factors will usually affect the printing qualities of the paper.

The smoothness of the surface governs, in a large measure, the smoothness and evenness of the resulting printed job. An uneven surface, or uneven density or formation requires the application of excessive printing pressures to force the plates or forms into the hollows of the surface. This causes the edges of the types or forms to sink into the high spots of the surface and yield rough, uneven edges to the impressions. A high order of ink-receptivity, or ink-wettability of the surface is also desirable to make the ink lift properly and "stay put" after it has been applied to the surface. The use of more organophilic and less organophobic materials in the furnish, sizing, loading or coating will aid ink receptivity. Materials such as rosin and casein are organophilic; while alum and other water soluble salts are organophobic. The importance of hardness or resistance to picking has already been emphasized. The resilience of the stock governs the amount of printing pressure which may be applied before embossing and a "punched-through" appearance of the printing results.

When ordering ink, the printer should always furnish the inkmaker with a sample of the stock the ink is to be used on, so that he may adjust his formula accordingly. This is advisable even though the manufacture of modern printing inks and modern printing papers have advanced to the stage wherein a considerable margin of safety is generally present between them, thus giving the pressman a fair degree of latitude in his selection of inks for any particular job.

Ohio TAPPI Discusses Wet Strength

The Ohio Section of TAPPI met at the Manchester Hotel, Middletown, Ohio, Saturday evening, March 13, 1943. Following a dinner served to 43, Chairman Carl Roess conducted a brief business meeting.

At the conclusion of this part of the program, Charles S. Maxwell of The American Cyanamid and Chemical Company presented a paper on "Wet-Strength Papers." The material presented was along the lines of that given before the Annual Meeting in New York last month. He discussed the use of melamine-formaldehyde resins in the beater and in the tub, pointing out the advantages and limitations of this type of resin compared to other materials which may be used to obtain wet-strength.

It was related that melamine-formaldehyde was superior to urea-formaldehyde for beater use, but under most conditions it was inferior as a tub size because of the difficulty involved in "curing" the resin. So far variable results have been obtained in the use of melamine-formaldehyde resins, but in general, they have been quite promising. Further work is being carried out in order to evaluate their properties and uses. In the discussion that followed the paper, Harold Sinclair and O. M. Cornell of American Cyanamid participated. One of the points brought out was that it is very difficult to reuse the broke from paper or paper board that has been treated with melamine resins. The only solution at present seems to be heat and time. A discussion of specific results which those in the audience had obtained with Paper Resin 605 was carried on. The inadvisability of reporting wet strength as a certain percentage of dry strength rather than reporting as a minimum dry strength and a minimum wet strength was pointed out.

The following men attended the meeting: T. Agronin, Emil Beserdick, William Boast, Duncan Brown, Howard Buechler, John Burdsall, John Burnett, Phil S. Cade, O. M. Cornell, L. C. Currier, Thage Dahlgren, C. J. Dynes, M. W. Fitzgerald, Leo Fleisher, Val Friedrich, Jr., R. N. Griswold, H. H. Harrison, Carl Ireton, Fred W. Laemmerman, Edward Lum, W. W. Macklem, Charles S. Maxwell, C. L. Mers, Reno Miller, F. E. Moser, George Munro, Clyde Narcross, D. D. Patrick, Chas. J. Pflanzer, Carl D. Roess, H. G. Sherman, Harold Sinclair, R. H. G. Smith, C. A. Sorg, C. P. Spring, Robert K. Stevenson, G. H. Suhs, P. G. Swayne, William Trimbach, Edgar Turnbull, Myron Wittmer, D. E. Woodward, and D. M. Yost.

Lakes States Hears Junior Competition

The Lake States Section of the Technical Association of the Pulp and Paper Industry met at the Conway Hotel, March 9, 1943. John Graff of the Institute of Paper Chemistry presided as Chairman.

A feature of the meeting was the presentation of two papers in the junior competition. These were presented by Donald R. McMasters and C. H. Kupers. These will be published soon in the Paper Trade Journal. Mr. McMasters' paper was on "Sulphite Acid Testing" and the one by Mr. Kupers on "A New Method of Wood Evaluation."

Carl G. Bertram of the Appleton Vocational School talked on "A Practical Program of Education for the Pulp and Paper Industry."

Those present included Daniel Adams, F. L. Aldrich, Francis Alland, J. W. Appling, H. P. Baldwin, Arnold Beeman, Carl Bertram, A. H. Bunks, W. L. Cassiday, A. Loffin, R. C. Crain, Roy L. Davis, Ralph Davis, G. K. Dickerman, K. Ivar Ekholm, Sigge Ekman, Alden Extrom, H. V. Frederick, K. W. Fries, John H. Graff, G. H. McGregor, O. M. Halse, John A. Hanson, Ted J. Holzem, T. A. Howells, I. H. Isenberg, F. G. Kilp, Clarence Kronquist, C. H. Kupers, D. R. McMasters, Rudolph W. Meyers, N. L. Malcove, Wm. H. Monsson, A. Raymond Moses, John J. Nyland, R. L. Osburn, T. A. Pascoe, P. A. Paulson, L. B. Penhallow, A. Phillips, Wm. J. Plank, E. W. Rasmussen, Robert F. Rogers, J. Richter Salvesen, Ed. Schoenburger, Walter L. Shaw, B. T. Smith, J. E. Todd, Martin W. Van De Laarschot, Rex Vincent, John P. Weidner, Sidney D. Wells, and John C. Wollwage.

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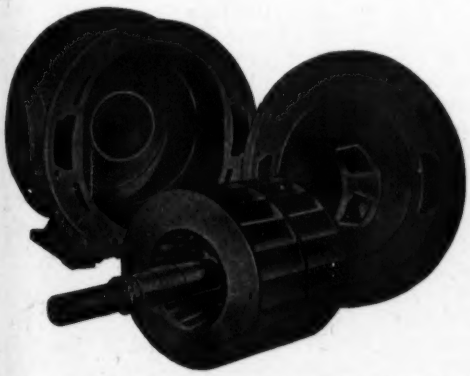

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Paper and Cordage Association Meets

[FROM OUR REGULAR CORRESPONDENT]

Philadelphia, Pa., March 22, 1943—Under the direction of George F. Corse, of Dill & Collins, Inc., and president of the Philadelphia Paper and Cordage Association, activities for 1943 have gotten under way. The monthly luncheon meetings which are held on the third Friday of each month at the Arcadia Restaurant have had a capacity attendance. On Friday last, the speaker was Hubert S. Foster, advertising director of the Mead Corporation, comprising the Mead, Dill & Collins and Wheelwright Paper Mills, whose trade paper and direct mail advertising are conceded to be among the finest in the industry. With his many years' experience and wide knowledge of all phases of paper marketing, Mr. Foster's talk was rich in information of the sort that is most timely.

Besides Mr. Corse, president of the association, the new electorate comprises R. H. Gifford, H. M. Gifford Manufacturing Company, vice president; J. R. Howarth, Jr., Howarth Paper Company, secretary; Benjamin F. Emery, Charles J. Cohen Co., treasurer. Directors are: Harry J. Smith, The Thomas W. Price Co., Franklin M. Kurz, Whiting Patterson Co., John J. Shinners, Jr., Acme Specialty Sales Co., Arthur B. Sherrill, Harry Platt, Denny Tag Company, and E. L. Richards, Buffalo Envelope Company. The personnel of the various committees is as follows: Entertainment—E. L. Richards, Buffalo Envelope Company, chairman; Benjamin F. Emery, and W. J. Culverhouse, Fort Howard Paper Company. Finance—Franklin M. Kurz, Whiting Patterson Co., chairman; Everett Hoffman, J. E. Fricke Co. and George K. Hooper, Hooper Paper and Twine Company. Membership—J. Howard Bancroft, chairman. Publicity—Fred Balch, Schuylkill Paper Company.

May Investigate Newsprint

[FROM OUR REGULAR CORRESPONDENT]

Washington, D. C., March 24, 1943—Any government plans to curtail newsprint production will be investigated by Congress, under a bill approved by the House Rules, introduced by Representative Halleck, Republican, of Indiana.

Provision of a newsprint investigation, if any curtailment is attempted, was written into the measure which covers a broader field than newsprint alone. The newsprint amendment applies specifically to:

"Requirements which would have the effect of curtailing the production or consumption of newsprint or book papers used in the printing of newspapers, magazines, or such other publications as are admitted to second-class mailing privileges."

Warns of Newsprint Cut

Philadelphia, Pa., March 22, 1943—Ralph Cowan, circulation manager of The Toronto Star and past president of the International Association of Circulation Managers, warned American publishers today not to live in a "fool's paradise" because a cut in newsprint had been postponed.

Addressing the Interstate Circulation Managers Association, he predicted that a cumulative cut would take place by July 1 and would be "one sweet honey."

He said that there were power, transportation and manpower shortages and that by July 1 newsprint shortages would be greater "than you have ever seen."

Michigan Div. Hears E. B. Ghysels

Kalamazoo, Mich., March 22, 1943—The Michigan Division of the American Pulp and Paper Mill Superintendents Association held its March meeting at the Park American Hotel, Thursday evening, March 18.

Chairman A. B. Perlick, who presided, announced that the plans for the Ladies' Night Dinner Dance, which is to be held Saturday evening, May 1, are going forward very satisfactorily.

Ernest B. Ghysels, manager of the U. S. Employment Service in Kalamazoo, spoke on "Labor Supply and Demand Under War Manpower Commission Directives." He said that key men deferment under the draft was made possible because paper is an essential industry which fact has been proven by figures accumulated by the Kalamazoo office. However, in order to obtain deferment for an individual, it is necessary to show that a determined effort has been made to replace him and a demand is being made to train someone for his job. Mr. Ghysels says that while ninety days previous the Kalamazoo area was one with a labor surplus, today it is a labor shortage area, lacking about 800 workers. Employment of women workers, he said has been steadily increasing in the Kalamazoo area, until at the present time 27% of the employees in 65 local establishments are women.

Among those present at the meeting were the following:—W. H. Astle, Ray L. Barton, G. A. Dean and M. S. Fogerty, Michigan Paper Company; Ralph Atkins and C. E. Gardner, Lee Paper Company; Harry C. Bradford, Henry Nendorf and Joe Waber, Rex Paper Company; Jake Boodt, L. H. Mimms and James A. Wise, Kalamazoo Paper Company; Robert Buss, A. R. Kloosterman, R. A. Spille and Harris O. Ware, Hercules Powder Company; O. W. Callighan, Edgar Brothers Company; L. Chittenden and Homer Eaton, Wyandotte Chemical Company; Frank B. Eilers, Orr Felt and Blanket Company; G. Fields, Eddy Paper Corporation; O. F. Fischer, Bryant Paper Company; C. F. Horederle, Anheuser-Busch Company, Inc.; F. Hodgemire and G. H. Gerpheide, Hawthorne Paper Company; E. B. Ghysels, United States Employment Service; J. H. McClaren, National Starch Products; A. McPhillips, Simonds Worden White Company; Al Perlick and George H. Rice, Kalamazoo Vegetable Parchment Company; Jacob Parent, Nobel & Wood Machine Company; Charles B. Rader, Glen Sutton, Al Sherwood and Arnold Weller, Sutherland Paper Company; A. W. Reidel, Gus Reidel & Sons; Joe Scheuermann, Cameron Machine Company; C. F. Sisson and Walter F. Wolfe, Mac Sim Bar Paper Company; P. H. Tigwell, Beloit Iron Works; Pete Talbot, R. T. Vanderbilt Company; E. R. Van Nutta, Western Board and Paper Company; Joe C. Widmeyer, Allied Paper Mills.

J. C. Doty Resigns

Joseph C. Doty, who was connected with the Howard Allied Paper Mills for sixteen years, first seven with the Maxwell Division at Franklin, Ohio, and past nine years with the Aetna Division, at Dayton, Ohio, as assistant manager and manager, resigned his connections recently.

He will be at his home in Miamisburg, Ohio, while considering several offers for a new connection.

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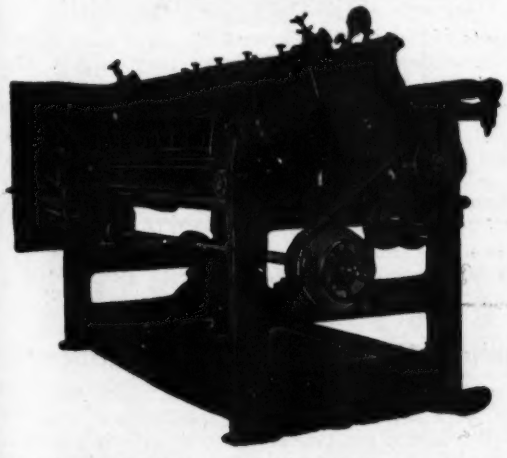

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New York Paper and Pulp Market Review

Paper Demand Continues to Reflect Uncertainty of Adequate Future Supplies—Wood Pulp Market Strong in All Grades—Mill Buying of Waste Paper is Active—New Cotton Cuttings Steady

Office of the PAPER TRADE JOURNAL.
Wednesday, March 24, 1943.

Heavy demand for major types of paper continues to be indicated in most reports received from many manufacturers' representatives, jobbers, and general paper merchants this week. Shortage of labor and delays in transportation are increasing the difficulties of doing business. One current problem which the business man cannot solve alone, is that created by rising costs associated with OPA maximum prices. To establish an equitable level it appears that some adjustments are needed to effect a better balanced price situation.

The index of general business activity for the week ended March 13 rose to 136.6, from 135.5 for the previous week, compared with 133.7 for the corresponding week last year. The index of paper board production declined to 145.5, from 147.9 for the previous week, compared with 165.5 for the corresponding week last year.

Paper production for the week ended March 13 was estimated at 89.8%, compared with 101.9% for 1942, with 91.8% for 1941, with 84.5% for 1940, and with 82.3% for the corresponding week for 1939.

Paper board production for the week ended March 13 was 93.0%, compared with 100.0% for 1942, with 82.0% for 1941, with 70.0% for 1940, and with 70.0% for the corresponding week for 1939.

Canadian comment on the newsprint curtailment and increase in price to $54 a ton, is sharply critical in some quarters, with the WPB held largely responsible for the 10% cut in consumption and pressure of the OPA for the $4 price rise. Higher costs, it has been declared, warrant a much higher price and $60 a ton is viewed as a fairer price than the one adopted.

The OPA announced on March 19 that an adjustable pricing provision was added to the regulation governing sales by manufacturers of paper board east of the Rocky Mountains. It provides that manufacturers covered by Revised Price Schedule No. 32 (sold east of the Rocky Mountains) may sell or offer for sale at those prices which are in effect at the time of delivery. This provision is contained in Amendment No. 3, effective March 19.

The WPB Conservation Order M-286, Part 3192, Specialty Papers, issued March 17, states that defense requirements have created a shortage of specialty papers for defense, private account and for export. The order prohibits uses for wrapping or packaging at the point of manufacture or of assembly, for paper products, except when oil-impregnated, bottled and canned goods, etc. It also denies the use of stated papers in the manufacture of wrapping and in packaging lamp shade, toys and games, toilet articles, decorations, advertising displays and other items.

Wood Pulp

Demand for all grades of wood pulp are heavy. Canadian shipments are reported to be delayed by heavy snows which has hampered railroad transportation. Supplies of all grades of bleached chemical pulps are very tight. All grades of pulp are active and the market is strong. A somewhat easier supply situation, dependent upon more favorable weather and an expected further curtailment in paper output, is expected in the next two months.

Rags

Mill buying of cotton cuttings is reported steady, with current prices fairly well in line with the OPA maximum price schedule, which became effective on March 19.

Old Rope and Bagging

The WPB General Conservation Order M-294, effective on March 19, restricts the use of waste Manila rope to essential paper products, including insulating, gasket, artificial leather and tag papers.

Demand for scrap bagging is reported good. Supplies are limited and all reports indicate a tight market situation.

Old Waste Paper

Demand for old waste paper is active in all grades. Prices of most grades are firm at ceiling prices. Sales of No. 1 mixed paper at .70 per cwt., and folded news at the same figure have been reported this week, plus the $1 per ton extra loading allowance on freight cars.

Twine

No important change in the twine market has been reported at this date. Demand continues far ahead of supply. Supplies are sharply limited for civilian use. Prices are firm on all standard hard and soft fibre twines.

Ashland Buys Schroon River Mill

Assets of the Schroon River Pulp and Paper Company, including the paper mill at Warrensburg, N. Y. were bid in by the Ashland Paper Mill, Inc. of Ashland, N. H., for $37,500 at a bankruptcy sale held at the mill recently. Seymour Baum, vice president and general manager of the Ashland concern, said it was the firm's intention to continue production at the Warrensburg mill.

The sale was conducted by F. U. Rommelfanger, trustee in the bankruptcy of the Schroon River Pulp and Paper Company, and Attorney A. Howard Silverman.

American Wringer Makes Appointments

The American Wringer Company, Inc., Woonsocket, R. I., has announced the appointment of Earl S. Parks to the position of general superintendent. Mr. Parks was formerly in the Planning Department of the Mechanical Roll Division. He has been in the employ of the company 25 years.

John J. Creeden, formerly a member of the sales force traveling out of the New York City office and, in addition to New York, covering the southern territory, has succeeded Mr. Parks in the Planning Department at Woonsocket for the duration, after which time he will again return to his territory.

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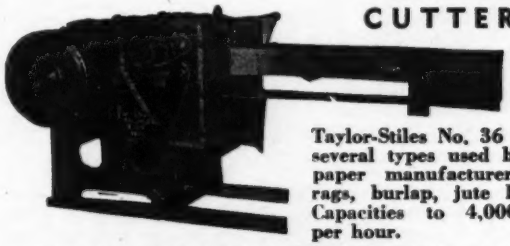

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MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, March 24, 1943.

BLANC FIXE—Quotations on blanc fixe are firm and continue unchanged at prevailing market levels. The pulp is currently quoted at $40 per ton in barrels, at works; the powder is offered at $60 per ton, f.o.b. works. Demand reported fair for the week.

BLEACHING POWDER—Prices on bleaching powder are firm. Current demand reported good. Bleaching powder is currently quoted at $2.50 per 100 pounds, in drums, at works.

CASEIN—Quotations on casein are unchanged for the week. Standard domestic casein, 20-30 mesh, is quoted at 19 cents per pound; 80-100 mesh at 19½ cents per pound; all prices in bags, car lots.

CAUSTIC SODA—Prices on caustic soda are reported unchanged. Demand for the current week is reported good. Solid caustic soda is currently quoted at $2.30 per 100 pounds, flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged. Demand reported fair for the current week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine unchanged. Government demand for war use continues heavy. Prices firm. Chlorine is currently quoted at from $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—Quotations on some grades of rosin are unchanged for the current week. "G" gum rosin is currently quoted at $3.49 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $3.41 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is currently quoted at $3.68 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake are firm. Demand reported moderate for the current week. Domestic salt cake is currently quoted at $15 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. Quotations on imported salt cake are nominal at $16 per ton.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Demand good. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch continue to be reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported fair. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at from $1.75 to $1.85 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $16 to $21 per ton, at mills. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	*$54.00	@	—
Sheets	62.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	$5.00	@	—
No. 1 Wrapping	4.75	"	—
Standard Wrapping	4.50	"	—
Standard Bag	4.125	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.05	"	—
White No. 1½	1.00	"	—
White No. 2	1.00	"	—
Anti-Tarnish M. G.	.95	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.16	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.35	"	—
Bleached, Jr.	2.65	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*60.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.. "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. & S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite	$76.00
Unbl. Softwood Sulphite	65.00@ 66.00
Bl. Hardwood Sulphite	73.50
Unbl. Hardwood Sulphite	63.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	62.00
S. Semi-Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	66.00
Unbl. Soda	62.00
Groundwood	46.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	*7.25	@	—
Silesias No. 1	*5.75	"	—
New Unbleached	*7.50	"	—
Blue Overall	*5.50	"	—
Fancy	*3.50	"	—
Washables	*3.00	"	—
Bleachable Khaki Cuttings	*4.25	"	—
Unbleachable Khaki Cuttings	*3.50	"	—

* OPA Maximum Prices.

J. Andersen & Co.

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NENSJÖ CELLULOSA A.-B.
Sprängsvärken, Sweden

Bleached Sulphite

KELLNER-PARTINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

Unbleached Sulphite

AKTIESELSKABET GREÅKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
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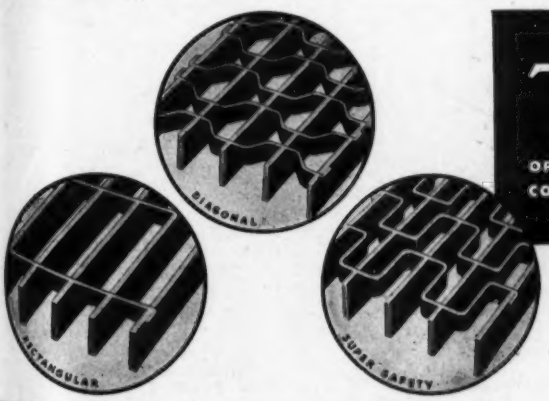

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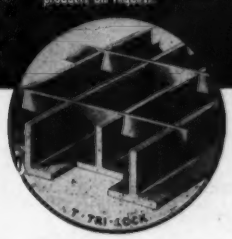

DRAVO CORPORATION

300 PENN AVENUE, PITTSBURGH, PA.
REPRESENTATIVES IN PRINCIPAL CITIES

Old Rags

White, No. 1—			
Repacked	*1.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.00	@	4.25
Wool Tares, light	4.25	"	4.50
Wool Tares, heavy	4.50	"	4.75
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	4.25	"	4.75
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	1.00	"	1.20

*OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.57½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old Kraft Corrugated Containers	1.50	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¾	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07½	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07½	"	.07½
Washable Prints	.03¾	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¼	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¼	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed Rope	.75	"	1.00
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old Corrugated Containers	1.00	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.75	@	—
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.75	"	5.25
Jute Carpet Threads	3.25	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.75	"	4.00
Wool Tares—			
Foreign	(nominal)		
Domestic	3.75	"	4.00
Aust. Wool Pouches	4.65	"	4.87½
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Bagging	1.35	"	—*

*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04¼	@	.04¾
Fancy Percales	.04¼	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06½
Underwear Cutters, Bleached	.06¾	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¾	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¾	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
*Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—